Ex. 77.

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## EXTENSION EDUCATION INSTITUTE
## NILOKHERI

# SUMMARY RECORD OF THE SEVENTEENTH COURSE

(9-1-67 to 8-3-67)

Developed by
PRINCIPALS AND INSTRUCTORS OF GRAMSEVAK TRAINING CENTRES AND HOME SCIENCE WINGS

DIRECTORATE OF EXTENSION
MINISTRY OF FOOD, AGRICULTURE, COMMUNITY DEVELOPMENT AND COOPERATION
NEW DELHI

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# SUMMARY RECORD
# OF THE
# SEVENTEENTH COURSE

(9-1-67 to 8-3-67)

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# INTRODUCTION

The seventeenth course of Principals and Instructors was commenced on the 9th of January 1967. The group consists of nine Instructors and one Principal from the States of Punjab, Tripura and Uttar Pradesh.

As the group was small more attention was given to the visual aids workshop and practice teaching. The group had a better opportunity of developing skills of teaching.

This time the efforts of the trainees have been carefully selected. This summary record contains a few talks from the members of the teaching staff and guest speakers. The talks that have been included have been selected according to the objectives of the group.

Each participant was given an assignment of preparing five lesson plans. Two of these were used for presentation in the campus itself. Opportunity to prepare visuals connected with the lesson plans was given to the group. These assignments consisted of preparing visuals connected with their respective subject-matter topics.

The first round of presentation of lesson plans was before a group of fellow-workers. The second round was before the group of senior Village Level Worker-trainees. The topics of the second round were selected keeping in view the requirements of the Village Level Worker-trainees of the refresher course. The Instructors were able to make use of the visuals prepared by them in these two rounds.

The analysis and the discussion regarding the presentation both before the group of Instructors and individually before the consultants has helped each individual to get a clearer picture of the techniques of teaching.

In addition to class room teaching the group was given an opportunity to prepare method demonstration plans and present them on the campus as well as in real situations.

During the village practicals the group was given a series of assignments connected with the seasonal requirements. In a pilot visit the participants contacted villagers and prepared their plans for their period of stay in the village. Unfortunately the elections had lessened the interest of the villagers in these practicals. Inspite of this the participants were able to make a few interesting studies connected

with agricultural implements, a joint farming society and of high yielding varieties. It was not possible to conduct a rat campaign because of the various interests in the village during this period.

During the study tour the group was given assignments to study the training programme of the Gramsevak Training Centre, Obedullaganj, M.P. A symposium was also organised for them wherein experts of the Intensive Agricultural District Programme gave them the details of the progress and achievements of the Package Programme. They also attended a seminar on programmed learning to examine the new techniques of teaching.

This booklet contains a few aspects of the contents of training during this period. The teaching staff and especially the Principals of the Gramsevak Training Centres to whom copies of this booklet are being sent are requested to kindly give their comments with regard to this training programme.

( Herbert W.Butt )
PRINCIPAL

# SYLLABUS

The syllabus for the Principals and Instructors course has been revised. Topics that are connected with teaching and training with more emphasis on educational psychology have been included. As usual the syllabus has been presented to the group for discussion. Their views on the topics included have been considered. Minor changes have been made accordingly.

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# DAILY TIME-TABLE

| | | |
|---|---|---|
| 9.00 AM - | 10.15 AM - | I session |
| 10.15 AM - | 11.30 AM - | II " |
| 11.30 AM - | 12.30 PM - | III " |
| 2.00 PM - | 3.00 PM - | Assignment/library/guidance and counselling |
| 3.00 PM - | 4.00 PM - | IV session |
| 4.00 PM - | 5.00 PM - | V " |
| 5.15 PM - | 6.15 PM - | Recreation and games |
| 7.00 PM - | 8.00 PM - | As mentioned below: |

| | |
|---|---|
| Monday - | Library |
| Tuesday - | Audio-visual programme |
| Wednesday - | Committee meetings |
| Thursday - | No programme |
| Friday - | Library |
| Saturday - | No programme |

## Break-up of the training period:

| | | days |
|---|---|---|
| Total No. of days (9-1-67 to 8-3-67) | | 59 |
| **Holidays** | | |
| Sundays | 8 | |
| Second Saturday | 2 | |
| Gazetted holidays | 3 | |
| | 13 | 46 |
| Orientation & evaluation | 2 | |
| Village practicals | 5 | |
| Field visits | 2 | |
| Study tours | 6 | |
| Workshop on A-V Aids | 3 | |
| Farmers' training & H.Y.P. | 2 | |
| | 20 | 26 |
| Actual working days available for campus work, talks, practicals, demonstrations etc. | | 26 |

## Break-up of periods:

| | Periods |
|---|---|
| Lesson plan evaluation | 3 |
| Village practical preparation | 3 |
| Study tour plans | 2 |
| Finalisation of syllabus | 4 |
| Lesson plan presentations | 30 |
| Method demon: " | 15 |
| Institutional seminar | 15 |
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TENTATIVE SYLLABUS FOR THE SEVENTEENTH COURSE OF PRINCIPALS AND TEACHING STAFF OF GRAMSEVAK/GRAMSEVIKA TRAINING CENTRES
EXTENSION EDUCATION

## I. EXTENSION EDUCATION PROCESS AND ITS ROLE IN RURAL DEVELOPMENT:

This course is broad in scope covering such items as current needs and problems in rural development; the Five Year Plans; Organisation; Philosophy and objectives of the National Extension Service and the Community Projects Programme, the nature and role of Extension Education in developing people and helping them learn ways to meet their needs through aided self-help etc. The course is designed to provide a basic grounding and orientation for all trainees.

1. Philosophy and principles of Extension - meaning and scope of Extension - basic concepts - change of mental outlook - human behaviour - attitudes - objectives - educational development - voluntary participation - development of the individual and family.

2. Professional competence of Extension worker.

3. Cooperative Extension work in USA, Land Grant Colleges, duties of county agricultural agent, approach to Extension work, comparisons.

4. How farmers accept new ideas - principles of diffusion - adoption process, adopter categories - their characteristics utility in Extension.

5. Meaning of Community Development.

6. Objectives and programme of community development - understanding the community - its needs - dignity of the individual - change in attitudes - educational programme - felt needs - lay leadership - reducing group tensions - voluntary participation - self help.

7. Current problems in Community Development - trends affecting Extension service. Local - institutional - personal - planning and execution - local leadership - supplies - values - evaluation.

8. Fourth Five Year Plan - objectives - salient features in agriculture and community development.

9. Trends in Indian planning.

10. Critical analysis of Community Development Programme by various bodies. Balwant Rai Mehta Committee, United Nations Team, Development Commissioners Conference - Ford Foundation and others.
11. Extension education as a means of increasing agricultural produstion.

12. Systematic appraisal of current agricultural production programme in India.

II. EXTENSION PROGRAMME PLANNING:

This course covers all the basic aspects of planning a programme for villages and blocks and should deal with problems relating to the analysing and evaluation of situations, assessing the felt needs of the people and deciding the objectives and devising the means of attaining them.

1. Problem oriented approach in Extension programme.

2. Programme planning - definition - principles & procedures - analysis of the situation objectives - teaching - content and method - evaluation - reconsideration.

3. Village agricultural production plan - collection of data, problems, solutions, plan of work, follow-up, evaluation.

4. People's participation in programme planning - motivation - ways and means of involving the people.

5. Team work and administrative coordination, principles and practice of administrative coordination - methods of administration - methods of work.

6. Role of local institutions in planning and implementation of development programmes - panchayats, cooperatives and schools.

7. Role of Extension worker in Panchayati Raj.

8. Programme evaluation organisation - its structure, objectives, method of evaluation - appraisal of its work.

9. Follow-up, its importance and significance in training programme with special reference to the village level worker.

10. Extension administration.

11. Developmental needs of youth - rural youth programme - role in agricultural production & community development.

12. Step-by-step organisation of rural youth clubs in the village, block, district and State levels.

13. How to prepare economic projects for youth club members.

## III. EXTENSION TEACHING METHODS AND COMMUNICATION PROCESS:

a) Principles of learning and teaching.
b) Characteristics and effective use of various teaching methods.
c) Nature and role of visual and audio-visual materials in teaching.
d) Development of skill on the part of the trainees in the actual use of teaching methods.
e) Problems relating to effective communication and ways to solve them.

### A) Educational Psychology:

1. Principles of teaching and learning - theories of learning - individual differences, interest and attention.

2. - - - - - - - - - - - - - do - - - - - - - - - - - -

3. Course outline - its importance - essential elements and how to develop a course outline.

4. - - - - - - - - - - - - - do - - - - - - - - - - - -

5. Lesson plans - importance of preplanning criteria of a good lesson plan.

6. - - - - - - - - - - - - - do - - - - - - - - - - - -

7. Effective techniques of conducting a class - elements involved - teacher, subject-matter, learner, physical facilities and teaching methods.

8. Adult learner - characteristics, developmental needs of adults, growth and decline of learning abilities, application in Extension.

9. The function and process of counselling - guidance - role of a teacher as a guide - its need and ways to make it effective.

10. Effective techniques of oral communication.

### B) The Communication Process:

11. Extension teaching methods, characteristics of Extension methods, selection and use.

12. Problems in communication and how to solve them.

13. Process of communication in teaching - nature and importance of communication, key elements of communication.

14. How to conduct method demonstration? Definition, importance, steps and problems.

15. How to conduct result demonstration? Meaning, significance, steps and limitations.

16. Exhibition. role in Extension education, organisation, effectiveness.

17. Practicals and their educational values - how to conduct practicals.

18. Workshop method of teaching and learning.

C. Audio-visual Education:

19. Audio-visual materials in Extension teaching - significance of audio-visual communication in education - psychological basis of learning through audio-visual materials.

20. Operation, constructional details and techniques of handling the opaque projector and slide projector.

21. Operation, constructional details and threading of a victor 16 mm film projector.

D. Visual Aid Workshop:

i) Audio-visual teaching materials - various types - merits and demerits.

ii) Chalk board - how to make effective use of it.

iii) Display boards for teaching - content, background devices and management.

iv) Charts - types of charts, their construction and use.

v) Flannelgraphs and flash cards - importance, construction and their effective use.

vi) Poster - criteria of a good poster, effective use in Extension.

vii) Models - types of models, how they are used, planned, designed and constructed.

viii) Puppets - different types of puppets, their features and use as a tool of communication.

ix) Drama - as a tool of Extension agency - advantages and disadvantages.

x) Conducted tours - criteria for planning a tour and some tips on making it educational and effective.

xi) Film strops and film slides - various types their effective use in teaching.

xii) Films - importance in Extension teaching, preview of films - advantages and disadvantages.

xiii) Film appreciation - meaning and principles of reviewing.

xiv) Production and use of literature, e.g. pamphlets, news stories etc.

E. Practicals:

xv) Formulating course outlines in various subject-matter areas.

xvi) Developing of teaching plans in their respective subjects.

xvii) Operation, constructional details and techniques of handling the following projectors:

a) Opaque projector,
b) Slide projector &
c) 16 mm film projector.

xviii) Preparation of the instructional aids as a group project on an educational topic pertaining to the syllabus at Extension Training Centres for example:

a) Poster,
b) Chart,
c) Flash cards,
d) Flannelgraph
e) Model,
f) Puppets &
g) Hand made slides.

IV. RURAL SOCIOLOGY:

A. Basic information:

1. Rural sociology - definition, scope and importance. Relation of rural sociology to Extension education.

2. Elements of rural society - distinguishing features, structure and analysis - their application to rural society.

B. Leadership in Extension:

3. Objective and need of group - leadership in Extension teaching - definition, classification and traits.

4. Method of selection of leaders in Extension. Basic patterns of leader and group relationship in rural society.

5. Leadership training and development.

C. Rural Community Organisation and Group Mobilisation:

6. Community organisation - principles and method - problem relating to community organisation.

7. Group - type and characteristics of group - cohesiveness conflict - decision making in group - Extension work through group.

D. Cultural Change:

8. Cultural change - definition - types and process of cultural change - factors causing change.

9. How to bring about a change? Methods and techniques.

10. Social and cultural context of planned change.

11. How to write a case study?

E. Group methods in Extension:

12. Group methods and their importance in Extension teaching process.

13. Various types of group methods. Advantages and limitations.

   a) Small group discussion,
   b) Large group discussion,
   c) Panel,
   d) Symposium &
   e) Forum

14. How to lead a group discussion? Role of a leader in a discussion.

F. Social Psychology:

15. Social psychology, traits of village people. Behaviour pattern - basic knowledge of physical, social and psychological needs of man.

16. Essential elements of social psychology and its bearing on Extension teaching process.

G. Evaluation in Extension Teaching:

17. Importance of evaluation - definition - steps in evaluation - criteria of effective evaluation.

18. Methods and techniques - as related to the classroom teaching - village level workers in block - with a view to find out merits and demerits to improve the training.

V. AGRICULTURAL ECONOMICS AND FARM PLANNING:

A. Agricultural Economics:

1. Bhoodan - Gramdan movements - its philosophy, growth and economics - its impact on agricultural production.

2. Principles and process of economic development - characteristics of underdeveloped economy - importance of capital - different sources - savings.

3. Role of Agriculture in Economic development of India - causes of low yields. Yield comparisons with other countries. Its relation with Extension methods.

4. Population problem - population explosion, its effect on development, income and food supplies - causes of decreasing birth rate.

5. Cooperative farming - concept, types and growth in India - its influence on agricultural production. Third Five Year Plan targets.

6. Service cooperatives - function, linking, credit with production, marketing and loan repayment, financial resources - progress, its role in agricultural production and Extension education.

7. Cottage and small scale industries - objectives, industrial cooperatives - functions and progress. Various organisations which help in the development of agri-industries. Its importance in agricultural development programme.

8. Steps in conducting social surveys - planning - collection - analysing - presenting data.

9. Methods used in surveys - observation - sampling - statistical methods - interview - schedules - questionnaire etc.

10. I.A.D.P. and I.A.A.programme - origin, objectives, content, administration, supplies and finance, review of progress.

11. - - - - - - - - - - - do - - - - - - - - - - -

12. The new strategy of agricultural production in India.

B. Farm Planning:

13. Farm management - definition, principles, and objectives layout and organisation, Extension and farm management.

14. Fundamentals of farm planning definition, principles, methods, characteristics, use in Extension teaching process.

15. The farm planning process - resources, strong and weak points, improvements introduced, alternative plan, comparisons, execution and problems of farm planning, follow-up and evaluation.

VI. HOME SCIENCE:

1. Home science and its importance.

2. Role of home science in agricultural production.
3. Balanced diet - constituents of balanced diet, balanced diet for different age and occupation groups. Importance of kitchen gardening.
4. Problems of diet & nutrition in rural areas.
5. Budgeting, importance of budgeting - steps in making a budget.
6. Applied nutrition programme.
7. Importance of family planning - merits and demerits of different methods. Contribution of women extension worker in educating village ladies.
8. - - - - - - - - - - - - do - - - - - - - - - - - - -
9. Problems of home science extension in rural areas.
10. Organisation of mahila mandals & balwadis.

# INTENSIVE AGRICULTURAL DISTRICT PROGRAMME, KARNAL

Gurmel Singh

The Intensive Agricultural District Programme, popularly known as the 'Package Programme' envisages the selection of favourable areas with maximum irrigation facilities and minimum of natural hazards, providing simultaneously all the essential elements, such as full supplies, credit etc., needed to increase agricultural production. At present even, in such favourable areas, essential requirements like fertilizers, pesticides, etc. are not being made available to the cultivators in the needed quantities and at the time when required. The programme, therefore, aims at an integrated and intensified approach to the problem of agricultural production in areas which are more responsive to such production efforts. As its immediate gain, the programme seeks to achieve rapid increases in the level of agricultural production through a concentration of financial, technical extension and administrative resources. In the long run, it aims at a self-generating "break through" in productivity and raising the production potential by stimulating the human and physical processes of change. The programme is also intended to demonstrate the most effective ways of increasing production and thus provide lessons for extending such intensified agricultural production programmes to other areas.

In Karnal District, selected for implementation of the Intensive Agricultural District Programme, all the elements required for increasing production are to be simultaneously provided. These include:

a) Adequate and timely supply of credit basdd on the production plans and made available through strengthened cooperative societies;

b) Adequate and timely supply of production requisites, such as minor irrigation works, fertilizers, pesticides, implements and machinery etc. to be channelled mainly through cooperatives and necessary skills and knowledge to use these inputs properly in a rational way.

c) Arrangements for marketing and other services through cooperatives so as to enable the cultivators to obtain full market price for their marketable surplus;

d) Adequate storage facilities for supplies, such as seeds, fertilizers, implements

and pesticides and for the farm produce, so that the cultivators do not have to travel long distances to procure supplies and market their produce;

e) Intensive educational efforts, particularly through scientific demonstrations, for dissemination of improved agricultural practices, through existing and additional trained staff who will also be concerned with the operation and 'follow-up' of production plans;

f) Strengthening of transport arrangements to ensure mobility of supplies and staff;

g) Village planning for increased production, including live-stock improvement programmes and strengthening of village organisations like cooperative and panchayats, the primary emphasis being on the production of rice, wheat and other major food crops;

h) Analysis and evaluation of the programme from its initiation to its completion;

i) Establishment of agricultural implements workshops, seed and soil testing laboratories and implementation of local works programmes having a direct bearing on production increase.

The means through which production increases are sought to be achieved under the programme include many of the known methods and practices. What is new in the programme is the collective application of all these in optimum doses, backed by adequate technical guidance and financial resources needed for productive purposes. It is hoped that the cultivators, through farm planning and other extension education activities, will more rapidly adopt recommended production practices and carry out their farm operations along more progressive lines. Farm and crop planning is thus intended to serve as an educational effort to acquaint cultivators with new technology assist them to shift from traditional patterns of farming towards the more progressive business approach of a systematically organised and operated farm programme.

The programme is to be carried out for a period of about four years. It will normally cover all the crops including important cash crops grown in the districts, although emphasis will be laid on the major foodgrain crops such as paddy, wheat and millets. In addition to programmes includes livestock and poultry development and other related activities which could

be profitably taken up in the selected areas. These activities are anicilliry to agricultural production and designed to be an integral part of the scheme.

The implementation of the Intensive Agricultural District Programme in Karnal involves two broad stages. The first may be termed as 'preparatory stage' during which the following items of work have to be undertaken:

a) Selection of areas within the district for implementing the programme;

b) Creating a general awareness among the farmers and non-official agencies such as panchayats and cooperatives and securing their participation;

c) Strengthening of cooperative institutions in the areas selected for coverage;

d) Selection, appointment and posting of additional staff;

e) Training of staff;

f) Organisation of a resource and production, benchmark survey;

g) Assessment of the supplies needed;

h) Construction and/or hiring of storage godowns with a view to bring the supplies within easy reach of the farmers;

i) Strengthening of transport arrangements; and

j) Locating and selecting areas fit for minor irrigation works.

It is only after the completion of these preparatory measures that the programme can enter the secondary stage, namely, one of operations and execution. The activities at this stage would include:

a) Preparation and follow-up of crops, farm and village production plans;

b) Adequate and timely supply of credit based on production plans;

c) Adequate and timely supply of production requisites, such as electricity, engines and motors, seeds, fertilizers, pesticides, implements etc. to be channelled through cooperatives;

d) Intensification of information and extension education activities such as demonstrations and use of other information media, holding farmer's training programme, at village, block and district levels;

e) Arrangements for marketing and other services through cooperatives; and

f) Analysis and evaluation of the programme.

Staff:

The programme will be implemented by providing intensified staff in the field so that each and every cultivator is approached. One Deputy Director of Agriculture (I.A.D.P.) will be incharge of this programme who will be assisted by one Deputy Registrar, Cooperative Societies, for ensuring full supply of credit and adequate marketing facilities to the farmers through a net work of tone-up cooperative institutions. To implement the programme in an efficient manner and ensure proper guidance and render all other services in time, the Deputy Director of Agriculture (I.A.D.P.) will have seven subject-matter specialists under him the subjects of:

1. Fertilizer soil and water management,

2. Agronomy and farm management,

3. Plant protection,

4. Horticulture and vegetables,

5. Animal husbandry,

6. Seed development and

7. Agricultural information and training.

On block level as well the agricultural & cooperative staff will be amply strengthened. There will be nine additional Agricultural Extension Officers and two Cooperative Extension Officers in each block to handle the intensified development work in agricultural and cooperative fields. The supplies of improved seeds, fertilizer, pesticides, improved agricultural implements and credit will be ensured in full.

Agricultural workshop:

The Intensive Agricultural District Programme envisages the establishment of an agricultural workshop under the charge of one full-fledged Agricultural Engineer who will be assisted by an Agricultural Engineer (Farm machinery and well boring). A new item of

provision of two bulldozers has been added for land development programme which will be given on hire for reclaiming uneven lands found in plenty in Karnal district.

Soil testing and seed testing laboratories:

The establishment of soil testing and seed testing laboratories will form another important feature of I.A.D.P. to help the farmers to draw the maximum advantage from soil and seed and fertilizers.

Information Unit:

A still another important item of facility to the farmers will be the provision of good agricultural information unit under the charge of a whole-time agricultural information and training officer. It will create a general awareness among the farmers about the programme itself and will take extensive educational work among the farmers and reinforce field activities by supplementing information through publicity media.

Training:

To ensure the successful implementation of the I.A.D.P. adequate and systematic training of the officials and non-officials will be conducted by organising training programme of varied durations.

Assissment surveys:

Last but not the least, bench-mark surveys or periodical assessments will be conducted to provide basic information for formulation of production plans and assess the progress achieved under I.A.D.P. from time to time. Adequate competent staff for the purpose is provided which will be under the charge of one Statistical Officer to be assisted by a Field Inspector, four Statistical Assistants (one per tehsil) and eight Supervisor-cum-Investigators (two per Assistant).

Physical targets of coverage and production of food crops:

In order to increase the production of our major food crops of the Districts (wheat, rice, maize and bajra) by 50-60 percent in the Fourth Five Year Plan, it is proposed to push up high yielding varieties of these crops on an area of 4.55 lakh acres (i.e. Wheat 2.49 lakhs, rice 1.50 lakhs, bajra 0.25 lakhs, and maize 0.40 lakhs). The area under minor irrigation is envisaged to be increased by one lakh acres through the addition of about 1,000 wells and 10,000 tubewells and pumping sets. Thus, this programme will result in an

additional production of over 2.51 lakh tonnes over the actual production of 4.70 lakh tonnes of these four crops obtained in 1965-66 of Karnal District.

Inputs:

It is estimated that about 1.25 lakh tonnes of nitrogenous and half lakh tonnes of phosphatic fertilizers will be consumed in Karnal in the end year of the Third Five Year Plan as compared to about 20,000 tonnes of the nitrogenous fertilizer in 1965-66. This will cover mostly the area under high yielding varieties and cash crops. Similarly, the requirements of improved seed of high yielding varieties will be ensured in full to the farmers.

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# EVALUATION OF EXTENSION PROGRAMME

T.M.DAK

## I- Evaluation Defined:-

The extension programme in any given country is designed to bring about "predetermined changes" in the behaviour pattern of its people. These are basic educational objectives of extension programme. Therefore the appraisal of the programme is the process of discovering the degree to which the changes in people are actually being realised. An evaluation of an extension educational programme is done by finding out the extent to which the objectives have been reached.

Evaluation is a rational judgment based on predetermined objectives and made in terms of stated goals. The main purpose of evaluation is to appraise carefully which keeps us from jumping to non-rational conclusions. Thus, it decreases our error in making decisions by providing factual basis for drawing conclusions.

## II - Uses of Evaluation in Extension process:-

Human beings make mistakes in their judgments and conclusions. Purpose of evaluation is to reduce the size of errors, to make more accurate judgments through application of scientific method. In brief, evaluation has several uses in different aspects of extension process:-

1. With regard to results it tries to determine the degree to which we are accomplishing what we have set out to do and to ascertain what improvements are desirable.

2. Evaluation gives a basis for adjusting the programme and to judge the effectiveness of programme planning alongwith the modifications which are desirable.

3. It provides impartial and objective evidence of the effectiveness of different extension methods in different social situations and population.

4. It tries to appraise the effectiveness of organisational, administrative and supervisory procedures.

5. Evaluation provides information about the interests, needs of the clientele and

6. Evaluation provides the evidence to the community of the value of the extension programme.

III- Importance of objectives in Evaluation:

As earlier mentioned, evaluation of extension teaching can only be made in the context of objectives of teaching. A study of effectiveness of extension programme cannot be made until the objectives of teaching are made clear and observable. An objective is defined as the point or purpose toward which anything is directed. Changes in the behaviour of people are the educational objectives toward which an extension worker is directing his efforts. If his efforts are effective the person who participates in the extension programme behaves 'differently' from the way he did before he took part. The participant knows, understands and can do something which he did not know, understand. New knowledge; new skills; new attitudes and their application in life situations - are the objectives of the programme in which he has participated.

In extension, stated objectives are valued. These are selected because they are good. It is the means to goals or objectives that are evaluated. For example, the objectives of the youth club is to develop leadership. To evaluate it correctly it is necessary to measure the means used to develop the desired leadership such as skills in holding elected offices; competence achieved to lead groups, ability to hold followers etc. Such evaluation tend to be qualitative, because it tries to measure quality of leadership. Similarly youth club seeks to develop scientific attitude among its members. This can be measured by quantitative measures such as number of new skills learned, number of recommended practices accepted etc.

Objectives of any given programme serve two purposes. First, they serve as a guide in the selection of teaching methods to be used in conducting the programme. Secondly, the reference of teaching objectives suggests the kind of evidence which will determine how successful a programme has been and to what extent it has accomplished the desired goals.

Since extension aims at bringing about changes in the behaviour of people, teaching objectives correspond to three groups of behaviour:-

1. What people know - knowledge.
2. What people feel and think - Attitudes.
3. Ability and skills in doing things.

Without objectives programme lacks direction and results in inefficient use of time and effort. Similarly vague objectives do not serve any purpose. For correct evaluation it is very necessary to formulate specific and

concrete objectives. A list of objective can be selected which are most important for evaluation. Finally, evaluation is done at the same level of objectives as the teaching.

IV- Evidence of success in moving towards objectives:

In addition to knowing the objectives of the programme it is also necessary to know the procedures which determine the success. This includes identification of evidences.

Before start looking for evidence it is necessary to analyse the work or activity which has already been done which leads toward objectives.

The second step is to collect evidence which means an outward sign; an indication or proof. Evaluation is made in terms of evidences of changes in the behaviour of a person or a group as a result of what worker did to bring improvement. The adoption of a recommended practice as a measure of educational outcomes, is a symbol of change in behaviour on the part of an individual. It is the evidence that the individual has acquired some new knowledge, skill and attitude.

Progress can be measured at three levels; (1) at the beginning in the form of benchmark enquiry; (2) during the process of conducting the extension work in order to determine progress and (3) at the end of the programme.

V- Measuring devices in Evaluation:

Different kinds of qualitative and quantitative devices has been designed to measure the behaviour of individuals and groups. These are devices which gather evidence as to person's knowledge; skills, attitudes etc. While selecting measuring device we have to keep in mind two things:-

1) Objectives of the programmes and
2) Type of evidence indicating progress. Following are some of the devices designed to record changes in the behaviour:-

   a) Knowledge test - Whether a person knows information.
   b) Understanding test - Whether a person understands certain things.
   c) Skill or performance rating - This will show amount of skill acquired.

d) Attitude scales - These show how people think and feel about certain things.

e) Value scales - These scales determine the value people place on things.

f) Interest checks - What are the interests of individuals or groups.

g) Adoption of practices - What practices have been adopted by individuals.

VI- <u>Outline of a Evaluation study</u>:

It is very important to know as to how a worker should go about while determining progress and evaluating his programme. Any evaluation study will necessarily involve following steps:-

1. Selection of extension project - activity; job; method or situation to be evaluated.

2. Background situation indicating why we are interested in evaluating a certain thing.

3. Analysis of extension teaching methods showing - a) What was taught.
   b) How it was taught.

4. Teaching objectives of the programme- What changes in the behaviour of the people are to be brought about?

5. What will be evidences toward the objective.

6. Form of recording information - interview; questionnaire; scales; tests; observation etc.

7. Plan of collection of data

   a. who will give information?

   b. who will collect information?

8. Sampling:-

   a. Sampling or census study.

   b. If sample, how to draw it.

9. Plan of tabulation and analysis of data.

10. Plan of interpretation and reporting of data.

VII-Keys to evaluating Extension Programme.

1. State the objectives of an action or activity to be evaluated in terms of "desired behaviour changes" in the people who are undergoing the process of learning.

2. Only those people "whom you try to reach" can provide proof of your success or failure. For what are the evidences of success or where to look for them, we have to examine each activity with following questions in mind:-

- what is educational objectives?
- what subject-matter have we taught?
- what teaching method did we use?
- who could have been influenced to change?
- what kinds of change could we expect?

3. The persons providing evidence of success must be "representative" of all whom you tried to reach.

4. The method of obtaining evidence must be appropriate to the kind of information being collected.

5. Carefully selected 'wordings' of questions to get reliable and unbiased data

6. Decide how you will analyse and use your evaluation results before evaluation is done.

VIII- Some principles to be considered in extension evaluation:

1. Self appraisal usually is better that appraisal by outsider. Evaluative research done by outside experts which does not involve local people notoriously results in little improvement.

2. Comparison of achievement with objectives and criteria within a programme lead to more growth and accomplishment than comparisons of one programme with other programmes.

3. Those concerned with the programme should be involved in the evaluation if the greatest benefit are to result.

4. Evaluation offers greatest potential benefit if it is a continuous and built in part of the total educational process.

5. Evaluation need be concerned more with result than with energy spent or opportunities provided.

6. Evaluate short term objectives in order to capture the thrill of success which will in turn provide the challenge for new interim objectives and in time the accomplishment of the long term objectives.

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# WORKSHOP METHOD OF TEACHING AND LEARNING

Badri Singh

## Problems in the traditional system of education:

One is what might be called as a universal timidity on the part of students, a disposition to take on a protective colouring by silence, to avoid hazarding voluntary statement that may bring ridicule. Another is the competitive instinct that is manifested in the disposition of some few learners to monopolize, to do all the talking, while the majority sit back, silent. Then there is the common inability to work together cooperatively, to hold significant conversations on points at issue, the inability to ask pertinent questions, the inability to make helpful suggestions to a person who is making a statement. All of these things together constitute a general inability in cooperative communication. It is these obstacles that have to be replaced with new dispositions.

The traditional education is pretty much responsible for the insecurity that many people manifest everywhere in competitive life. The position of the learner in traditional education is a subordinate one. That is, he is required to obey, he is required to follow directions, he is required to follow directions, he is required to do assignments, he is required to act in the way someone else approves. He grows up under traditional education in the presence of suppressive authority. Learners under those conditions develop all of the slavish traits, and some of the outstanding ones are insecurity, lack of self-respect, lack of confidence in the presence of other people, and lack of ability to cooperate with others in common projects.

## Meaning of workshop:

Man has been searching, for a more effective method of putting into practice the truths that have become known about how people learn. A way must be found to enable groups of people to learn from each other and help each other toward the solution of common problems. We have found that the workshop creates changes in the individual that make him not only a better person and a more effective teacher, but a person whose relations with his students will be more wholesome and productive. It is only when we can devise experiences which change people that we can affect practice. The test of any educational experience in any professional institution is whether or not the individuals' attitudes and methods are better because of it.

As the word implies, a workshop means work. It is a meeting of people who work together in small groups,

usually upon problems which they derive themselves. Complete participation is the keynote of a workshop because it is expected that changes in the people - their ways of doing things will result. The emphasis is not on inspiration furnished by speakers but upon close association with other participants, capitalizing on a cross-fertilization of ideas and experiences. An educational workshop is a device for facilitating intensive study of educational problems. Workshops are used mostly for professional improvement and inservice training success depends on having well-defined objectives and a homogeneous group vitally concerned with these objectives. Organization of the workshop is built around problems which the participant bring with them.

Stage setting in a workshop includes an identification of the problem or problems, explanation and attempts at solutions with sufficient reference and background material available.

The Principles

1. The most important thing about any person is his attitude toward other people. We live in a social world, life consists almost entirely of contacts and relationships with other people. Our basic approach to others determines the kind of lives we live and the success we achieve. The whole essence and meaning of democracy as opposed to authoritarianism lies here. The attitudes of teachers toward other people are crucial than those of the ordinary citizen, as teachers are specifically engaged in the building of people, other people is precisely what the entire teaching profession is about.

2. The primary need in the building of people is to learn better human relations. The business of communication between individuals and groups or nations is far more difficult than we have recognised. Misunderstanding leads to harmful attitudes, and eventually to the desire to destroy others. The building of people who can understand others and come to like them is necessary for survival.

3. Every individual has worth, and has a contribution to make to the common good. Everyone of them is a bundle of accumulated experience, unique to themselves. Everyone of them knows somethings, because of the unique nature of his background, that no one else knows. There is, therefore, much to be learned from even the least of us, provided situations can be set up where the dammed-up supply of experience can be released.

4. Learning leads to more learning, and the human organism is infinitely curious. The human being will seek knowledge if left to his own purposes, and the building of

new knowings into his own experiences will lead him onto other activities. Because he is more competent with each addition of experience, he will upgrade himself since not to do so would lead to repetition and boredom.

Thus it is that learning begets more learning, and each new learning leaves unanswered questions. There is no rest in the learning process, because each achievement presents new visits full of new problems. This is the essence of the fact that life itself is process, and will not become static under ordinary concrete circumstances.

5. The most crucial learning at any given time has to do with the individual's current problems. The unsolved problems of the teacher's life and work become the point of attack. The solution of these problems, if this ever could be completely done, will lead to others more remote, and at least theoretically, will spread out indefinitely.

6. Cooperation as a technique and as a way of life is superior to competition. When people cooperate, they are learning about each other, depending upon each other, and developing confidence upon each other. The process throws people into situations where it is possible for better human relations to emerge. It is an attack upon the barriers that separate people and tend to make them suspicious of each other.

When they compete, they must work alone, because to share ideas or materials would help the competitor. By working alone, to one's own advantage and to the detriment of others, the walls of isolation between people are built higher and stronger. These walls work directly against the improvement of human relations so essential to living in the complex society.

Objectives

1. To put teachers in situations that will break down the barriers between them so that they can more readily communicate. We cannot learn from each other until isolation is mitigated and communication improved.

2. To give teachers an opportunity for personal growth through accepting and working toward a goal held in common with others. This is the recognition of the fact that people are not taught but learn. The function of the teacher is to arrange situations such that the learner will learn - will be self-taught.

3. To give teachers an opportunity to work on the problems that are of direct, current concern to them.

When the learner works on his own current problems, expanding outward as new questions arise, he is motivated.

4. To place teachers in a position of responsibility for their own learning. It is the essence of learning to have to make decisions and assume responsibility. Assuming the responsibility, for one's own acts would seem to be near the centre of the educative process.

5. To give teachers experience in a cooperative undertaking. Cooperation like anything else, is learned in action. Not to know how to work cooperatively deems in individual to isolation.

6. To learn methods and techniques which teachers can use in their own situations. Unless we have a chance to learn a better way through experience we are apt to teach in the class. By experiencing methods which permit teachers to grow in keeping with their own needs and purposes, teachers may learn how to arrange like learnings in their own classes.

7. To have an opportunity, in collaboration with others, to produce materials that will be useful in teaching.

8. To be put in a situation where teachers will evaluate their own efforts. This is closely related to the assumption of responsibility. When an individual assumes the responsibility for a course of action, he automatically judges how well his decision worked out. The kind of evaluation that matters in the long run is what the learner thinks of his own performance. What the learner himself thinks is built into experience and becomes literally a part of himself. This subjective evaluation furnishes guideposts for future action. It enables one to correct false procedures, to revise decisions, and to attain the goals.

9. To give the teachers an opportunity to improve their own morale. Much of present teaching has been reutilized to the point of boredom. When work is routinized and ritualized, the creative aspects of teaching disappear and morale declines. Many of the teachers suffer from lowered morale. This is detrimental to their work. Experiences which lead them to feel that their jobs are not futile tend to dispel this feeling. This is especially true when they have an opportunity to meet with others who have similar problems.

Conducting a Workshop - The Procedure

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The workshop starts with a programme developed in advance but subject to changes by a steering committee of

staff and participants which is formed the first day to carry through or replan the workshop. Procedures are kept flexible.

The steps commonly followed in conducting a workshop are as follows:

1. Someone - a group, a committee, or organisation etc - conceives the idea and the general area to be explored, gets the idea approved, and then advertises or diffuses the idea.

2. A chairman or committee is designated to select a site, receive reservations, obtain resource people, and make other general arrangements.

3. The chairman opens the first session and conducts a problem exploration session.

4. Specific problems on which the members would like to work are listed. Work groups are then formed by the members on the basis of their choice of problems on which they wish to work.

5. Work groups meet, choose a chairman, a recorder, and a representative for the planning or steering committee, then proceed to work on the problems of the group - problems - solving process.

6. The planning committee is organized and proceeds to plan the rest of the workshop so as to facilitate its conduct.

7. The planning committee develops a plan for the remainder of the workshop and submits their plan to the whole group for consideration and acceptance.

8. The resource people work among the groups. They may be staff members or experts invited from outside.

9. The final session to present the summary of the findings of the groups, followed by general discussion.

10. The evaluation of the workshop.

a. Self-evaluation.
b. The small-group evaluation.
c. The total groups own evaluation.
d. Evaluation by the staff.

11. A closing statement by someone selected by the planning committee.

So, there must be a planning session, work sessions, and summarizing and evaluating session.

**The time for the workshop varies from** three days to three weeks. In order to reduce barriers between the learners, use the first names, serve, [illegible] coffee at the beginning of the session, open the general session with singing, eat dinner together and have planned social affairs. In the evening, after the work is over, some thought needs to be given to recreation. Library facilities, visual and auditory aids, and field trips should be organized.

Let us see what is done when a session has been operated on a workshop basis.

1. The subject-matter of the workshop has been derived from the learners.

2. The participants have had a chance to operate in accordance with their own purposes.

3. Each member has had a chance to contribute; one has needed to remain passive.

4. Leadership has had an opportunity to emerge from the group with the consent of those led.

5. Each has had a chance to engage in doing, rather than being cast in an inactive, listening role.

6. Fundamental human needs - a task, a goal, and freedom to move toward it - have been provided for.

7. Barriers between people, which prevent communication, have been reduced.

8. Reports from working groups are usually bound in a final report and processed for limited distribution.

The outcomes of the workshop.
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An educative experience should produce changes for the better in learners in order to be worth while.

1. Changes in attitudes. Attitudes are all important because they release the energy needed to translate knowledge into power. Changes in attitude toward fellow teachers, students, and people in general are expected.

2. Changes in teaching method.

3. There are signs of personal growth. A purpose of all education must be the personal growth of the individual. Teaching is primarily the business of making arrangements and affording a climate and conditions where growth may take place.

4. Human relations are improved. Skill in human relations is the most important learning one can experience. The only way by which human relations can be learnt so that the learning will function and will modify behaviour is by having experiences in working and playing with other people. We cannot teach a skill without having the learner try it. It is only by doing things with others toward commonly accepted goals that this commonaly can be gained and the basic loneliness of the human spirit can be assuaged.

5. Friendships are formed.

6. Prejudices are reduced.

7. There are appreciation for and understanding of democracy. The democratic way of life cannot be taught in a more effective manner than in the workshop. The democratic way of thinking, working, living, teaching are taught through the workshop. Educational workshop is a fine example of democracy in action.

8. New skills in using resources, staff, books, and writings.

9. By the process described above, when learners are oriented to the idea of learning from each other and by experience, they begin to have confidence in their own thinking. They are automaticlly more willing to express themselves the learners become more constructive and courageous people.

10. Through the experience of workshop, cooperative participation develops, people become responsible. They plan, work as resource persons, sometimes as leaders and sometimes as followers.

11. Workshop prvides an opportunity to explore and help the groups and the individuals. It is a natural pattern of learning a natural pattern of human relationships. It conforms to the nature of human beigns and their inherent drive to learn by doing. It is investiggative, it is cooperative, it uses the people and the things in the environment.

SUGGESTIONS.

1. Workshops are more successful if held at a place removed from distractions.

2. All workshop members are needed for planning, working, and evaluation. It is good procedure to urge people to attend the entire workshop and to discourage attendance if it is to be on a partial basis.

3. Do just enough preplanning to get the people there and started to work.

4. Depend on the needs and interests of the participants of the programme.

5. Avoid long speeches, particularly by people who are chosen for 'name' reasons. Most such persons do not know much about the problems around which the workshop is called.

6. Depend upon the enthusiasm, ingeniuty, and creativity of the members of the workshop for success.

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# ORGANISING TRAINING FOR RURAL YOUTH

R.D. Kaushik

## I. Why rural youth clubs?

Man is a product of the society. Every individual imbibes qualities and characteristics of the group in which he lives. Family is the first group where he is born . The second group, the children will soon seek will be of playmates and schoolmates of their own age. The last group in which individual will react during his adulthood will be his professional and occupational one. We want the rural youth to prepare himself for the third group during the period of his membership of the second group.

The period of youth is a transactional period from childhood to adulthood and it is, therefore, necessary to develop youth physically, mentally, socially, economically and emotionally to lead adulthood successfully. Therefore the youth should be trained so as to fit himself in the groups effectively and lead adulthood life successfully.

By joining rural youth club the youth will fulfil his basic needs which are comprised of elemental, developmental, and functional needs. The following developmental task will also be achieved by him by working in rural youth club:

1. Intelectual and mental development,
2. Physical development,
3. Economic development,
4. Social development,
5. Emotional development,
6. Development of values and ethical system &
7. Technological development.

The main aim of organising rural youth clubs is to create a group in which member by his participation acquires roles conciously or unconciously which he has to play in his adulthood as a good citizen who knows his right and responsibilities and duties to lead successful life by serving his community and nation.

## II. Need of organising training:

The vital importance of training to the club members, and volunteer leaders for the expansion of the youth movement cannot be over-emphasized. This is the most important limiting factor and the success of the programme will vary in direct proportion to the success of the training programme.

In the initial stages, the training of the volunteer leaders will be similar to that of prospective club members. The volunteer youth leaders should be closely associated with this work in their areas. After the projects have been in operation for a few months and these volunteer leaders have acquired an insight into the programme, they may be called for an intensive training course lasting about 10 days. The volunteer leaders are the back bone of the whole organisation and, therefore, they should be thoroughly trained not only in the methods and working of the youth organisation, but also in the technical "know how" of the various agricultural and other projects. Being practical farmers, it will not be difficult for the volunteer leaders to acquire the necessary skill.

III. Organising training:

Under this heading we will discuss organisational aspect on how to organise training. The system should provide essentially an organisation to look after proper training which is a basic need for any well planned programme. The block or the training institution should have a regular programme and draw the members of the youth clubs from different clubs to provide them different trainings needed in this programme. These trainings can be arranged in instalments covering first phase regarding giving preliminary idea of the clubs in a day or two. It can be followed by another training of a week or so acquainting them with the functioning of the club and operations to be performed. Anually or seasonal training also need to be taken up in respect of projects and programmes connected with crops.

It is essential to have nucleus organisation to take care of training at various stages during the life period of the youth club.

IV. Content of the training:

The training should be job related and connected with the community life as a whole. The following items need to be taken into consideration while formulating a syllabus.

1. Knowledge of community development, extension service and five year plans.

2. Importance of rural youth clubs and need for proper training of rural youth.

3. Role of youth in self-development and development of the community life.

4. Proper organisational method of youth club and its successful running - maintenance of proper records.

5. Leadership development.

6. Knowledge of planning and programming.

7. Knowledge of projects and any other specialised training in respect of other enterprises like soap making, poultry etc.

8. Evaluation of programmes and judging in competitions.

V. Method of training:

The following different training programmes can be arranged according to convenience. These training camps will generally take care of job training in the field. Other items can be covered by field trips, class room lectures, discussions and by practical exercises. A set of suggestive courses is given below:

1. Camp training of different durations i.e. one day to 7 days to orient members about the rural youth programme and its content.

2. Regular training once a week. It will help the members to acquire necessary procedural know-how of running an organisation.

3. Institutional training for a week or more. Such training will orient the members about the jobs and will help them in having their problems dealt for solutions. It will not only refresh but will make them abreast with the latest thinking about the programmes.

4. Seminars and conferences: Such seminars or conferences need to be arranged once or twice in a year where exchange of thought and solution to the problem can be had.

It is, however, felt that the training should become an integral part of the process and it should be a continuous one irrespective of the fact that the type of training we choose to conduct.

VI. Approach in training:

The following points should be borne in mind while organising training:

1. The talks have to be carefully thought out and a written synopsis prepared in advance. They should be brief, and spoken in simple language. They should be repeated during the demonstration so that they are fully grasped by trainees.
2. Keep the talks to the minimum and encourage discussion on each of the points made out.
3. The talk should be arranged with the aid of audio-visual materials.

4. Questions to be put up before leaders for discussion should be simple and directly related to their specific needs and problems.

5. There should be no classroom approach and talks should be limited.

6. Teaching by showing practical demonstration is most effective method.
7. Attention has to be paid on the physical arrnagements during talk, discussion or demonstration.
8. List of demonstrations should be prepared so that the material and equipment could be arranged.
9. Questions regarding cost of different things, source of availability, extent of subsidy or loan should be answered with care & accuracy.
10. Shramdan (community-work) for about an hour of cleaning the village, digging compost pit, etc.,should be encouraged.
11. The manner of living in the camps should demonstrate to the trainees several improved practices designed to improve the rural conditions.
12. It is advisable for the officials to take advantage of these camps to understand the practical difficulties experienced by the youth & other participants in obtaining Government's assistance in matters like loans and supplies & also cooperation in different rural programme.
13. The officials who participante in the camp should stay in the host village and mess with the campers.
14. A staff meeting should be held at the end of the camp to evaluate the organisation and contents of the programme.

VII. Involvement of different personalities:

In the training programme the following should take part as far as possible:

1. Panchayat members.

2. Progressive farmers and lay leaders.

3. Industrialists or private firm engaged in agriculture or community development.

4. Similar organisations working for youth.

5. Government officials up to district and state level. Subject-matter specialists should be given preference.

6. Members of the youth club successfully running in the near about area.

VIII. Evaluation of the training programme:

The following two aspects need to be evaluated:

a) Training methods and training programme: It will help us to formulate our training programme successfully in the future if training courses are evaluated properly.

b) Change in behaviour in the trainees who get the training. This can be ascertained by observing their work in the field, listening to their reaction and by examining the objectives where they have been fulfilled or not.

IX. Follow-up of the training programme:

It is very rightly said that "follow-up" is the life of the programme. Constant guidance and supervision from the trainers or the block staff is very essential. Regular literature should also be supplied which will abreast the members about the latest activities of the programme and also give technical knowledge in the subject-matter connected with the projects.

Incentives in the form of certificates & prizes also form important part of follow-up. Conducting rallies, competitions and seminars will also help in educating members. Due to negligence on this item of followup, our rural youth programme has already got a set back.

The above note is a tentative outline to provide some nucleus points for thought and discussion but these are certainly not the final recommendations.

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# PROGRAMMED INSTRUCTION

(Based on excerpts)

Dr.H.W.Butt

The latest theory of teaching in a systematic manner is being advocated as programmed instruction. This movement represented by the 'teaching machine' promises to provide a new technique. It is essentially an approach to individualised instruction for a society that needs to educate its masses. This new technique needs new orientation. The specific advantage of this technique is that in view of the shortage of qualified teachers this method will enable one good teacher to do the work of ten. The quality of teachers and trainers has to improve in order to make the end product effective. The main emphasis is on the teachers who in turn can help the trainees to be proficient in the field.

It would be interesting to get an understanding of this new technique. Can this be adopted to our needs of training? Let us examine this teaching method and try to see, what it contains.

* What is programmed learning.

Instruction by "teaching machine" is also called programmed learning or self instruction. The learning here is the result of the interaction between a programmed material and the student. The material may be presented through any device - a machine or a book. The programmed material has the following distinguishing characteristics:-

a. It is individualised; i.e. one person learns at a time. The device speaks to him without the intercession of a monitor or tutor.

b. The device presents material to be learnt in minimal increments. It operates on the principle that we learn better in small doses, and that we also learn better if we avoid errors. By proceeding in small steps we obviously reduce the likelihood of error.

c. That which is to be taught is rigorously ordered. Because of the desire to hold unexpected errors by students to a minimum, each step in the learning process has to follow logically, as well as closely, the one preceeding it.

d. Students progress at their own pace. Instead of being restricted to a class room situation

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* The above definition of programme learning has been taken from the introduction to Programmed Instruction by Dr.S.S.Kulkarni.

where an average student sets the pace for all students in the room, each user of a programmed instructional device, learns as quickly as he is able to. His rate of accomplishment is established by his performance alone.

e. The student's answer is almost instantaneously checked against the correct answer which appears before the next question is asked. In this way the student receivesthe reassurance that his answer is correct, and the very appearance of the correct answer reinforces his learning. If the answer is incorrect, he can easily locate the reason for his error, without, as in traditional learning, discovering that he is-all atonce-at sea.

What is a teaching machine

"Teaching machine" is a device that can present instructional material which has the characteristics described above. This device could be a book, a box of cards or a complex one containing material that could be presented through audio-visual media. The verbal material required for lesson to be taught could be presented in an exercise form. The most important item in a programme - writing frame is a sequence, leading a student to a defined educational objective. Such a programme could be presented through a machine or through a book form. The book forms which are more appropriate to our needs also can vary. Some authors prefer to give an answer on the same page following the frame while some give it on the back page. Non-verbal material like pictures can be presented in a book format but where certain skills are involved, a complex teaching machine may prove to be more effective.

How far can we adjust our training programme to these new techniques? Is it possible to plan our instruction material individually. The word "teaching machine" may sound to technical and mechanical. The material for teaching if prepared in advanced and simplified would definitely help in our type of teaching the Village Level Workers. The subject matter content of the syllabus, if simplified and prepared in sequence and in small doses can definitely bring better response and effect. Is it possible to reduce the entire subject matter content included in the V.L.W. syllabus to a teaching machine? The advantage of doing this definitely will help quite a large group of teachers in making the teaching simplified. If some of the experts undertake this work it would be easy and convenient for new Instructors to carry out the systematic approach of an expert without having the required experience of an expert.

Developing a programme:

It has been pointed out that there are differences in the approach in programming. Some of the methods are designed

to lead the student through the material in an unbroken sequence of steps. This is called linear programming or a single track programme. By making each step in the learning process small, by using prompts and by basing each small increment of learning on previously learnt material, they reduce the chance that a student will fail to grasp the information correctly. Therefore, they reduce the chance that student's response will be incorrect. Usually but not necessarily, a linear programme uses constructed type response, i.e. a student is required to compose his own answer to each question. A fill-in would be typical constructed type response.

Another approach to programming is called branching programme. This implies multiple-choice response pattern, i.e. a student is required to discriminate and choose the one right answer which is presented alongwith a number of other plausible but incorrect answers. Learners who make the wrong choice from among those presented are asked to follow another track or branch which corrects their error or further claifies the point in question.

In order to develop a programme we should have a clear idea of what a programme is supposed to teach. We should analyse the subject matter, the content and the skills involved so as to organize content in an efficient order. We should make a list of the pre-requisite skills and information, the mediating or transitional concepts of the final instructional goals. There are different procedures to analyse different subject matters. The precision and clarity of such analysis would vary from subject matter to subject matter.

In developing a programme it would be necessary to prepare proper frames. Frames are written in a sequence. There must be gradual progression from simple to complex concepts in successive steps. There are two broad categories of frames; learning frames and testing frames.

a. Learning frames are those on which various prompts and cues are given to bring the important instructional material to the attention of a student and make it understood by him. A good programmer not only helps students to respond correctly by giving prompts or stimulus support, but he also writes items in which stimulus support is withdrawn successively. The student should gradually be "weaned away" from the support provided in the early stages of the learning process. He should be able to solve problems based on the previous material without any prompting or support.

b. Testing frames are those which do not provide any stimulus support and test whether a student has actually understood the material presented in the previous sequence of frames.

Subject matter will have to be organised in a number of ways. A certain sequence, logically or otherwise may not be effective in terms of student's responses. A text book writer has no guarantee that his book will perform its function of making students understand a given subject matter. The question-answer format of a programme necessitating a student's response on every subject enables writers to improve a programme by carefully studying the error pattern of students in the try-outs.

The development of programme consists in organizing the subject matter in the light of defined educational objectives, writing and editing frames, trying them out and revising on the basis of try-out data and then finally evaluating it in terms of student's achievement.

Programme learning material is another advance in instructional technology. All educational objectives cannot be achieved by a given programme. The material in a given programme reflecting certain specified objectives can be learnt by a person of certain characteristics after going through that programme without any outside help. In programmed learning the teacher is considered as a director who guides students in the process of learning. He tells the students which programme they should use, and when, and who coordinates and fills in all the gaps in the total process of instruction. Programmed teaching is not handled completely by machines but it is felt that a human teacher can produce better results on a larger scale by using programmed learning or self-instructional material.

Difference between a programme and a text book

A programme has a question-answer format which a text book usually does not have. This makes the student responsive at every step. The utility of text book is not usually demonstrated in terms of the student's achievement.

Limitations of programmed instruction

Programmed instruction or self-instruction will work only if students are motivated to learn. No educational aid, nor even a teacher, can teach if a student does not want to learn. It is pointed out that in programmed learning the knowledge and results provided at each step is a motivating factor. In addition to this, a teacher, giving time and skill, may be able to find out the causes of the student's apathy to learn. He might be able to arrange the learning situation within and outside class room environment. It is hoped that the use of programmes can relieve a teacher from some duties and give him sometime to do the functions of a creative human being.

Another objection to programmed instruction is that it cannot foster proper attitude, moral standards etc.

This is not considered a permanent limitation by the programmers. There are large areas in sciences and languages where the above condition can be fulfilled.

Another limitation is that the nature of programmed instructional material cannot be easily transplanted from one area to another. It assumes certain standards of reading ability, some knowledge and skill presuppose and of in that programme.

<u>In what areas can this new technique be used:</u>

It has been demonstrated that programmed learning has been effective in Geology, Chemistry, Mathematics, Physics, Educational Psychology and other similar areas. The greatest advantage of this method is that it helps the students to 'think'. The subject matter content is assimilated in such a way that the student is able to use it effectively. In order to try out this new technique it would be necessary to study the technique in detail. We should be able to develop new programmes to fit in the special needs of our trainees. Such work requires a team of experts which can examine the possibilities of using this technique for our purpose. In so far as the technical content of our syllabus is concerned such a programme can be useful if it is spelled out in detail to fit in with the requirements of our V.L.Ws. It would be helpful if some thought is given to this new technique so that a part of it may be experimented in some of the areas which lend themselves to such a programme.

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## LESSON PLANS

Out of the total only such plans have been selected that have not been repeated so far. The topics are according to the areas of each Instructor-trainee. Emphasis has been given to the high yielding varieties.

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# LESSON PLAN NO. 1

**Topic:** Package of practices of Groundnut

**Aids to be used:** a) Chalk
b) Blackboard,

**Presentation:**

1. Introduction: Groundnut is an excellent cash crop. It is one of the chief sources of vegetable oil, which is being used for cooking purposes and also used in the preparation of vanaspati, soap, shaving creams, glycerine, lubricants. Oil is also used for lighting purposes, medicinal purposes & insecticidal purposes. In rotation this crop improves the fertility of the soil. Vines form an excellent cattle feed. These may also be used as green manure.

   Groundnut cake is rich in protein & thus it is used as cattle feed. It is also used as manure and also for producing artificial fibre.

   | | Nitrogen ($N_2$) | Phosphorus $P_2O_5$ | Potash $K_2O$ |
   |---|---|---|---|
   | Groundnut cake. | 7-8% | 1.5% | 1.5% |

   Groundnut shells are used as fuel, composting, and in making coarse board and carks. The average per acre yield of Groundnut in the Punjab/Haryana is 300-400 Kgs. which is very low. It is, therefore, necessary to adopt package of practices for stepping up its yield per acre in the interest of farmers and also in the interest of nation.

2. Soil & climate: Groundnut is a Kharif crop which thrives best on sandy and sandy loam soils. The soil must be well drained. It fails under dry as well as under waterlogged conditions.

3. Preparation of seed bed: 2-3 ploughings.

4. Time of sowing: From the 4th week of June to the 3rd week of July.

5. Seed rate: 30-35 Kgs. Kernals per acre.

6. Variety: P.G.No.1- Spreading type recommended for rain fed areas.
   C501- Eract type recommended for irrigated areas.

7. Seed treatment: Treat the seed with corosan before sowing in the ratio of 1:400.

8. Sowing: The seed may be sown by Kera/para/ drill method by leaving 1' distance between rows.

9. Manures: Nil.

10. Fertilizers:

| | | |
|---|---|---|
| CAN/A/s | .. | 50 Kgs. |
| SP | .. | 100 Kgs. |
| Muriate of Potash | .. | 20 Kgs. |
| Gypsum | .. | 20 Kgs. |

11. Interculture/Hoeing: No hoeing is recommended. Only one interculture in the form of weeding should be done.

12. Irrigations: 3-5 irrigations according to the locality & moonsoons .

13. Harvesting: For harvesting plants should be loosened with the help of Khurpa & then removed for forming small heaps, which are left in the field for a day or two and then collected into a large heap.

14. Thrashing: The dried plants are shaken severely with the help of sanga. The fallen down pads & leaves are separated by winnowing.

15. Plant Protection: Collar rot disease attacks at all stages of growth. It can be controlled by treating seed with ceresan.

Budrot- The buds begin rotting after 2-3 weeks, growth ceases and ultimately plants die (No control so far)

. Tikka disease: It is premature shedding of leaves & it appears on leaves & petals in the form of small circles yellow in colour.

Spray Bordeaux mixture in the ratio. of 4:4:50.

16. Yield: 8-10 Quintals per acre.

17. Questions

1. What are the uses of Groundnut cake?
2. What are the uses of Groundnut shells?
3. What are the uses of Groundnut oil?
4. What is the seed rate?
5. What are the dozes of fertilizer?

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LESSON PLAN NO. 2

Topic: Importance and cultivation of Potato.

No. of periods: One of 45 minutes.

Objectives: To acquaint the trainees about the Potato cultivation & its uses.

Aids to be used: Black board.

Presentation:

i) Introduction: Potato is used as vegetable and out of it other delecious preparations are made. Potato by products are used for preparation of thread, glucose, Alcohal etc. In recent years due to the shortage of food . the importance of growing Potato has been realised and their growing on an extended scale is being done. The edible portions are tubers that are modified stems. The potato is essentially a crop of cool & moist regions. In Punjab the acerage is 45 thousand acres and the production is 285 thousand metric tons according to area production report of 1964-65. In plains it is cultivated during winter and in hills during summer. Loam soils are best suited for best cultivation. The field must have good drainage arrangement. The nutritive value of Potato crop is as under:

| Moisture % | Protein % | Fats % | Minneral matter % | Carbohydrets% |
|---|---|---|---|---|
| 74.7 | 7 | 0.1 | 0.6 | 22.9 |

| Calcium % | Phosphorus % | Iron % | Vitamin A (I.U. per 100 g) |
|---|---|---|---|
| 0.01 | 0.03 | 0.7 | 40 |

| Vit.B/mg per 100g. | Micotinic acid mg per 100g. | Riboflavin mg per 100g. | Vit. C mg per 100g. |
|---|---|---|---|
| 0.10 | 1.2 | 0.01 | 17 |

From the above table it is clear that Potato has more of Vitamin A, Micotinic acid and Vitamin C.

ii) Varieties: These are classified into two groups.

a) For plains
b) For hills

The varities grown in the plains are further sub divided as below.

1) Early.
2) Mid.
3) Late.

The detail of above divisions is as under:-

1. Early varieties of Potato.

i) Satha - Matures in 60 days yields 40-60 mds. per acre.

ii) Gola - This also matures in 60 days.
iii) Upto date - Matures in 60-75 days.
yields 100 mds. per acres.
iv) Craig's defiance - Matures in 70-75 days.
yields 100-120 mds. per acre.
v) Military special - Matures in 70-75 days.
yields 100-120 mds. per acre.

2. <u>Mid season varities</u>

Surkha - Matures in 90-120 days.
yields 100 mds. per acre.

3. <u>Late varieties</u>

i) Patna - Matures in 120-150 days.
yields 120 mds. per acre.

Craig defiance & Upto date variety seed brought from the hills can also be sown as late variety in the plains very well.

b) The following varieties are grown in hills.

i) Up to date.
ii) Craig's defiance.
iii) Gradeskot.

<u>Precautions to be taken while purchasing the seed</u>

1. Be sure about the variety.
2. Seed must be healthy & pure.
3. Seed must be disease free.
4. Seed should be uniform in size.
5. Use certified seed.

<u>Precautions to be kept in view before sowing</u>

1. Size of the seed must be average.
2. Seed should spread in a dim light and in a cool place and the diseased Potato be sorted out.
3. Full Potato should be sown if the sowing is done in September.
4. Cut pieces of seed should be sown if it is sown in late December & January.
5. Cut pieces should not be kept for a long time but should be sown on the same day.
6. Every cut piece must have atleast two eyes.

<u>Preparation of the Land:</u> There are three aspects of field preparation:-

i) Potato is to be sown after harvest of Kharif.
ii) After green manuring.
iii) Keeping the field follow.

In first case 2-3 ploughings followed by plankings are given, the roots & the stocks of Kharief are weeded out. In second case

green manured crop is ploughed & burried during August and four ploughings followed by plankings are essential. But in third case light ploughing followed by plankings are done. Before sowing it may be seen that the soil is well pulvanised.

Manuring:

1. 30 cart loads of F.Y.M. before ploughing.
2. If the soil is very poor then the quantity of F.Y.M. can be increased.
3. According to the recommended doses the below noted quantities of fertilizers should be used:

   2½ Qtl. of calcium Ammonium Nitrate
   3 Qtl. of super phosphate
   3/4 Qtl. of Muriate of potash.

Drill all P & K at sowing time. Apply ½ N 10 days after germination as side dressing and other ½ N at the time of earthing up.

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# LESSON PLAN NO.3

**Topic:** Cultivation of Potato (contd.)

**No. of periods:** One of 45 minutes.

**Objective:** To acquaint the trainees about the Potato cultivation.

**Previous background:** In the last lecture they were acquainted with the importance, seasons of sowing, varieties and the preparation of land etc.

**Aids to be used:** Black board.

**Presentation:**

a) Seed rate per acre: It depends on the size of the seed and spacing. Average seed rate is 4-5 qutls.

Sometimes the eyes of Potato seed remain under dormant condition and there is no germination of seed for a long time. In a dilute solution .3% of Thiourea the seed should be dipped before sowing to overcome the dormant condition of the Potato seed.

b) Time of sowing:

| | |
|---|---|
| Plains | 1. September-October<br>2. Mid December-January. |
| Hills | March-May. |

c) Method of sowing: It is generally sown on ridges and the below noted distances are recommended.

| | Small size | Big size |
|---|---|---|
| Line to line | 1½" | 2' |
| Seed to seed | 6" | 9" |
| Height of ridge | 8" | 10" |

Shellow planting has been found to injure the tubers by the "sun burn" and tuber moth attacks which ultimately affects the field.

Ploughing upto the depth of 10" is fairly easy with animals though uneven land makes the deeper ploughing difficult.

d) Irrigation: First irrigation is given when plant height is 3" to 4". Following irrigations should be given with an interval of 7-10 days and in all six to eight irrigations must be given.

e) Weeding, hoeing and earthing: After first irrigation one weeding should be done after that two hoeings at intervals

followed by thick earthing be done.

f) Crop sown

| | | Harvested |
|---|---|---|
| Plains: | 1. September-October | February-March. |
| | 2. December-January | April-May. |
| Hills: | March-May | October. |

g) Selection of Potato for seed

1. It must be of average size and healthy.
2. If sown by cutting, it must be of big size.
3. For the first three months Potato seed is unfit for seed because it has three months dormancy periods.
4. Must be kept in cold storage.

g) Diseases:

1. Early blight: Spray with Punjab mixture and the spraying should be repeated after 15 days.

2. Late blight: Spray with Punjab mixture repeating every fortnight till harvested.

3. Leaf curl: Remove disease plants. Dust with 5% B.H.C. to control insect.

Testing the knowledge

1. Why seeds are treated with thiourea?
2. What are the common diseases of Potato?
3. What are points which you will consider to select the seed.
4. What is the optimum seed rate?

References:


1. A Hand book of Agriculture
   I.C.A.R.I. Publication.

2. Alu Ki Kheti
   I.C.A.R.I. Publication.


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# LESSON PLAN NO. 4

**Topic:** How to get high yields with hybrid Jowar.

**Objective:** To equip the trainees with the knowledge of improved methods of Jowar cultivation.

**Previous background:** In previous class cultivation of other food crops such as Bajra was taught and the various crops grown on the farm were shown.

**Aids to be used:** i) Black board (ii) Samples.

**Presentation**

a) Introduction: Importance of the crop.

1. It is a good source of food.
2. It is one of the most widely grown dry cultivation crop.

b) Presentation of the subject matter:

Climate: It requires warm & moist climate with intervals of dry weather.

c) Soil:

i) Best grown on black cotton soil.
ii) Can be successfully grown on clay loams but well drained.
iii) It can be grown on light medium red soils also which can retain moisture.

d) Preparation of the field

Select the leveled piece of land with good drainage. Plough atleast six inches deep and prepare land well by repeated ploughing & harrowing. Before the last ploughing mix 10 cart loads of F.Y.M. per acre in the soil. Before sowing it should be noticed that the land should have proper moisture for the seeds to germinate.

e) Seed rate:

Use 4-5 Kg. of seed per acre. But make sure that you purchase new seed every year. It should also be checked whether the seed has already been treated or not. If not then treat the seed with powdred sulphur at ½ ounce for 4-5 Kg. of the seed.

f) Sowing time:

Kharif crops should be sown immediately after the break of monsoon. But as early summer crop it should be sown by the first week of July.

g) Fertilizer requirements per acre:

In addition to organic manure already applied before sowing the following doses of fertilizer are recommended for irrigated crop.

| | | |
|---|---|---|
| a) Ammonium sulphate | 500 Kg. | All P&K & ½ N may be given as Basal dose. And rest 1/2 of the N after 30 days of the sowing. |
| b) Superphosphate | 300 Kg. | |
| c) Muriate of potash | 50 Kg. | |

h) Sow and space properly:

Drill the seed not more than 4 cm. deep in rows 45 cm. apart. Immediately after germination examine if there is any gap. If there is any fill it up by hand dibbling.

Thin out the crop at two stages so as to retain one plant after every 10-15 cm. Final thinning should be done when the plants are 30 days old.

i) Interculture:

Keep the field free from weeds. Intercultivate not more than 4 cm. deep to raise the soil level around the plant.

j) Irrigation:

There should be proper moisture at the time of sowing. Crop should be irrigated when needed. See that the field has proper drainage as water-logging will damage the crop. Excessive water from the field should be drained immediately.

k) Protect the crop:

Spray the crop against the attack of stem borer with endrine .05 per cent at the rate of 200-300 litres per acre after a week of germination on a sunny day.

l) Out turn:

The average out turn by adopting all these above mentioned practices will be 15 qtls. or more.

m) Varieties:

Hybrid jowar has the following varieties:

a) CSH-1 (coordinated sorghum Hybrid No.1)
b) CHS-2 ( " " " No.2)

CSH-I is mainly suited to the irrigated summer tracts of Madras & Andhra Pradesh and the early and medium duration Kharif areas in Mysore, Rajasthan, Gujrat, Madhya Pradesh. Its duration is 90 to 100 days. It is dwarfish with long earheads and has creamy white bold grains.

CSH-2 has a duration of 115 to 120 days. It is taller than CSH-1. In areas in which late rains are likely to damage the already mature ears of CSH-1 because of its short duration, you should prefer the longer duration hybrid CSH-2.

Both these hybrids are suitable for grain production rather than for fodder production because of their high grain to straw-ratio.

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# LESSON PLAN NO. 5

<u>Topic:</u> "Rice the hope of Millions"

<u>Number of periods allotted:</u> One of 45 minutes.

<u>Objective:</u> To equip trainees with the new knowledge on the importance of higher production of Rice crop.

<u>Previous background:</u> I shall deal with the production of rice only. Previous knowledge on High Yielding varieties will help.

<u>Aids:</u> Blackboard and chalk pencils.

<u>Introduction:</u> Rice along with wheat contributes 62 per cent of the total cereal production in India. The production of Rice and Wheat is roughly in proportion of 3.5:1. Rice occupies 30 million hectares of land extending from the southern most corner of Kerala to the northern most area of Kashmir with annual production of 30 million tons of rough rice. The economy of the Indian farmer is bound up with the harvest of rice. As the per acre yield of the crop shows no trend of improvement, the Government of India has to import cereals of the order of 3.2 million tons in 1958, which mounted to 4.5 million tons in 1963 and 7.5 million tons in 1965.

<u>Presentation:</u> What is the reason of this slow progress? The reasons are as follows which will speak the causes of failure of public opinion and programme to transform the traditional agriculture into highly productive sector. These may be
(i) Attitude of the farmers to technological change.
(ii) Lack of Agricultural fundamentalism.
(iii) Conflict between agricultural approach and Industrial approach. This is examplified by Mexico where agricultural production is increasing at the rate of 7.1 per cent per year. This is not due to industrialisation of the country at the expenses of Agriculture.

Means <u>for changing the attitude of the farmers</u>:-

1) New useful knowledge e.g. yield increasing inputs.
2) New useful skill

as because farmers will calculate the price of the new factors and the profit that he will get from them before he changes his attitude and adopts them.

<u>The yield increasing inputs:</u> Rice yield per acre in the United States increased from a five year annual average of 1,091 pounds per acre in 1889 to 3,563 pounds per acre in 1963. Yield in Japan increased from 12.52 Koku per hectare in 1881-87 to 25.12 Koku per hectare in 1960-63.

The gradual increase is due to:-

1) High yielding variety that can take high fertility level.
2) Fertility control.
3) Irrigation and water management.
4) Better cultural practices including rotations and weed control.
5) Better machinery.
6) Control of disease and pests.
7) Skill and knowledge of the farmers.
8) Proper use of manures and fertilizers.
9) Split application of nitrogenous fertilizers for better soil retention, ability of rice plants to utilize effectively and to avoid luxury consumption with excessive vegetative growth and danger of lodging.

Summarising and recapitulation: This study on increased production of rice crop reveals that high rice yields is due to (i) more fertilizer responsive varieties (ii) favourable environment (iii) highly intensive culture (iv) heavy fertilizer application (v) better controlled irrigation (vi) much labour input. In the high yield contest, the Krishi Pandits in India obtained rice yields varying from 4,586 Kg. to 19,934 Kg. rough rice per hectare with the local and improve all-indica varieties by providing the aforesaid yield increasing knowledge and incentive and rewards to farmers.

Testing and check up: What are the yield increasing inputs?

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## LESSON PLAN No. 6

1. Topic: Need for high yielding varieties e.g. rice crop.

2. Number of periods: One of 45 minutes.

3. Objectives: To equip the trainees with new knowledge of new high yielding varieties of rice crop.

4. Previous background: No discussion was held in the previous class. It will be discussed now.

5. Aids to be used: Black board and chalk pencil.

6. Introduction: The need for growing high yielding varieties of rice crop cannot be overemphasized in the context of steeping up agricultural production. Four thousand varieties of rice are grown in the different parts of the country. With systematic research programme financed by I.C.A.R. Since 1932 more than 445 superior strains giving on average 10 to 12 percent better yield than the farmers' varieties are now available. The tall-indica varieties that are grown for centuries in India offer very little hope for substantial yield increase through the use of fertiliser and other applied technology. The increased availability of nitrogen results in excessive vegetative growth which brings about premature lodging without any increase in grain yield. Potentially, high yielding varieties, therefore, will meet the need.

7. Presentation: The tropical Japonica like Tainan 3, Taichung 65 and Chianung 242 exhibit wider adatability and are less sensitive to photo period and high temperature conditions. They have got excellent yielding ability and nitrogen responsiveness in both kharif and rabi seasons.

   Taichung Native I, evolved in Taiwan is an erectoid dwarf type which has got the characteristics of having

usually short stiff straw with profuse tillering and are more lodging and draught resistant than the parent ones. Taichung Native I has been introduced in India since 1965. It is high yielding and under favoura-ble conditions it can use 125 to 150 k.g. nitrogen per hectre and give an yield of 5 to 7 tons per hectre (i.e.2½ acres).

Production of crops is the result of the coordinated inter-play of the (i) heriditary factors and (ii)Environmental conditions e.g.temperature and light. In India, the temperature in the main ricegrowing season starts with about 30°C in June and declines to 22°C in November while the second season starts with 18°C in January and ascends to 27°C in April. Dwarf-Indica Taichung Native I, therefore flowers in about 75 days in the main season and in about 102 days in second season. The yield of these photo-nonsensitive varieties, are, therefore, low in kharif and high in spring season.

N.B. Planting of 2-3 weeks old seedlings is of great importance with these varieties to avoid untimely heading.

8. Summarisation and recapitulation:

What is the need of growing high yielding varieties can be summarised as follows:

a) Excellent ability of yielding high.

b) Nitrogen - responsiveness good.

c) Non-sensitive and long maturing habit.

d) Resistant to premature lodging.

e) In kharif this Taichung Native I can be grown with irrigation and better control on water management.

f) Resistant to drought.

g) It has got strong straw.

h) In non-irrigated areas time of platning is the start of monsoon.

9. Precautions:

i) Taichung is a heavy feeder of fertilizers.

ii) It cannot stand water-logging and stagnation of water.

iii) Untimely heading should be avoided by planting two to three weeks old seedlings.

10. Testing and check-up:

i) Why we should go for high yielding varieties? Give points.

ii) What are the characteristics and precautions for growing Taichung Native I.

11. Assignment:

Trainees are required to come prepared tommorow as this topic will continue on other important noteworthy aspect of Taichung Native I.

12. Reference:

i) Mayer and Anderson 1960.

ii) Thapar 1964.

iii) Third Five Year Plan

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# LESSON PLAN No.7

1. Topic: Cultivation of high hielding paddy (I.R.8) - history and characteristics.

2. No. of periods: Three of 45 minutes each.

3. Objectives: To impart knowledge regarding the new characteristics and cultivation requirements of new high yielding paddy variety I.R.8.

4. Previous background: The trainees have learnt general cultivation of Indian varieties of paddy.

5. Teaching aids: Black board, samples and specimen of plants and grains of I.R.8., charts and posters.

6. Presentation:

A) Introduction:

Rice is one of the top most staple food crop in our country. It also occupies maximum cropped area and grows from South to North and East to West. In South 2 to 3 crops a year are taken but in North so far only one crop of rice is being taken. The present Indian varieties do not have potentials of high production. Moreover most of them are long durationed varieties and do not suit to take two crops in one season in the North. Due shortage of food in India, there is need to evolve and bring such varieties which have potentiality of high production and mature in short period so that two crops can be taken in the same season.

I.R.8 is a new high yielding variety which can respond to good management. Efficient utilisation of this variety demands a resonable level of management which can be reflected in high returns for the inputs of fertilizers and pesticides at a greater rate than is possible with local varieties under comparable management and inputs.

B) History:

I.R.8 which is a stiff strawed and dwarf variety was selected from a cross

made at the International Rice Research Institute, Los Banos in 1962. The cross I.R.8 was the eighth in a series of many crosses that have been made at that Institute. Parentage of the cross is Dee-geo-Woogen and Peta. Dee-geo-woo-gen is a dwarf indica variety from Taiwan and Peta is a tall growing indica variety from Philippines.

I.R.8 was first grown and tested in India in Rabi 1965-66 at Rajendranagar and Cuttack after seeing its performance at International Rice Research Institute, Los Banos. Additional data during Rabi 1965-66 was obtained at Los Banos and other locations which provided decisive evidence of its yield superiority over Taichung Native I. The Rice Research Workers at their meeting in Hyderabad in May 1966 agreed to include this in the Uniform Variety Trails if seed could be obtained from I.R.R.I.

Twenty different trials through out the country were laid besides trials in national demonstration in Delhi and another in Orissa. The results of these trials show its superiority over T.N.I and on an average this amounted to 1218 k.g. per hectare or 30% increase. At I.R.R.I., this variety has yielded more than 10,000 k.g. per hectare.

C) <u>Characteristics of I.R.8:</u>

1. It is stiff strawed dwarf indica and therefore does not lodge.

2. It is heavy yielder and has yielded about 30% more than T.N.I.

3. It is heavy feeder and responds to fertilizers well. Like T.N.I this variety has the ability to make more efficient use of nitrogen at lower fertility levels than other varieties. This is an important factor in India where limited quantities of fertilizers are available.

4. The quality of grain is a generally acceptable grain type. It is long-bold and longer than T.N.I. The length of grain is 6.5 m.m.

5. It has strong seedling vigor and high tillering ability.

6. It is moderately early maturing (about 120 days from seeding to harvest). It's slightly longer maturity period (10-15days) later than T.N.I would enable it to fit better into the monsoon seasons as ripening would come nearer to the close of rainy season.

7. It has moderate seed dormancy of 25-28 days. It's dormancy factor which should tend to reduce damage in case it does mature in a rainy period.

8. It has moderate resistance to tungro virus, but susceptable to a few races of the rice blast fungus at Los Banos and elsewhere in Philippines. Under field conditions in India, I.R.8 has shown greater tolerance to both these diseases than T.N. I.

9. The grain has a high amylose content and a low gelatinisation temperature, indicating that the cooking quality is acceptable for most of the Asian market.

10. It is draught resistance and requires less water.

D) Comparative characteristics:

| S.No. | Character | I.R.8 | T.N.I |
|---|---|---|---|
| 1. | Brown rice % | 78.4 | 78.5 |
| 2. | Head rice % | 57.0 | 60.0 |
| 3. | Protein % | 8.5 | 7.5 |
| 4. | Grain length m.m. | 6.5 | 5.1 |
| 5. | Plant height c.m. | 82 | 93 |
| 6. | Tillers per hill (kharif) | 13 | 18 |
| 7. | Tillers per hill (rabi) | 16 | 22 |
| 8. | Bacterial leaf blight | susceptible | Highly susceptible |
| 9. | Blast | Free | Moderate susceptible |
| 10. | Leaf hopper attack | Light | Severe |

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# LESSON PLAN No.8

1. Topic: Cultivation of high yielding paddy (I.R.8) package of practices.

2. No. of periods: Three of 45 minutes each (2nd period).

3. Objectives: To impart knowledge regarding inputs, cultivation procedure and other crop management techniques.

4. Previous background: Trainees have knowledge of Indian varieties and history and characteristics of I.R.8.

5. Teaching aids: Black board, samples and specimen of seed, seedling and plants, flash cards showing different stages of growth.

6. Presentation: A) Introduction:

Although I.R.8 is a high yielding variety of paddy yet its cultivation details are quite different than local paddy. I.R.8 is dwarf, short duration, heavy feeder & high yielding which is totally different than Indian varieties. It should be kept in mind that the essential requirements and good management of this variety can only lead to high yields. While dealing with this variety it will be advisable to make a clear contrast of different requirements of I.R.8 and local paddy.

The following practices may be considered as the minimum level at which I.R.8 should be grown for maximum return or investment. Many of the variables considered have not been studied extensively on an experimental basis so that this package may be subject to modification in the light of future experiences.

B) Areas of adoption:

a) Single crop areas where water supply is assured:

1. Punjab, Haryana, Delhi & Western U.P.

2. Eastern U.P. and Bihar.

3. Assam, wherever short statured varieties can be grown.

4. West Bengal and Orissa.

5. Madhya Pradesh.

6. Maharashtra.

b) Multiple crop areas:

1. Costal Andhra Pradesh.

2. Second crop (thaladi) in the Tanjore deltas in Madras.
3. Second crop (August) in Mysore and Kerala.

Note: In Punjab, Haryana, Delhi and some parts of Western U.P. where there are facilities of irrigation during summer two crops can be taken in the same season. The summer crop has given better results than rainy season crop.

C) Soil:

Soils should be well drained and have an adequate water supply for good crop culture. Where rainfall is the source of water, I.R.8 may not be expected to give maximum yields unless rainfall is well distributed.

D) Seed:

I.R.8 is being multiplied through a seed certification programme which has been set up by the National Seeds Corporation and includes field inspection, seed drying, cleaning, treating and bagging in uniform sized bags that carry the NSC emblem, tag and seal.

The untreated seed can be treated with Agrosan GN, Captan etc. before sowing. I.R.8 has dormancy of 25-28 days.

E) Seed rate:

Ten to 12 k.g. of seed is sufficient to sow an area of 400 sq.meter of seed bed which is sufficient for transplanting for an acre.

F) Nursery raising:

Many of the unfavourable results obtained with the new varieties in the previous years can be traced to seed bed management. Basic management of the seed bed should endeavour to produce seedlings ready for transplanting in 20 to 25 days for I.R.8 and other high yielding non-photosensitive varieties. Use of raised seed beds which is highly fertilized with phosphate and potash & well rotten farm yard manure. Nitrogen should be in moderate supply in order that carbohydrate development in the leaves may be at a maximmm at the time of transplatning. Raised seed beds can be avoided where there is scarcity of water.

Seed beds should be seeded at light rate rather than a heavy rate so that each seedling has optimum opportunity for development with good seed, this rate can be 10 k.g. seed in 400 sq.meter of bed which will be sufficient for transplanting for an acre.

Normal plant portection for seed bed includes are spray with endrin or parathion before transplanting.

G) Field preparation:

A good puddled field will provide a good transplanting bed. It should be levelled and any green matter if used be burried well before transplatning. Only 2" water should be allowed in the field at transplanting.

H) Dose of fertilizers:

Recommendations for basal nitrogen application can include 75% of the nitrogen as basal in the form of ammoniacal or urea nitrogen. This should be applied and immediately worked deeply into the soil to avoid nitrogen losses by changes to nitrate and denitrification. I.R.8 has given responses to nitrogen well above 100 k.g. of N. per hectare and will give more efficient utilization rates at levels below 100 k.g. N . It does not require heavy nitrogen application but can take advantage of such rates more efficiently.

Recommendations for phosphate and potash cannot be generalized because of the wide variation in supplies of these nutrients already available in soil. If possible, obtain soil analysis of your field. In the absence of soil tests, $P_2$ 05 should be applied at the rate of 50 k.g. per hectare and $K_20$ at the rate of 25 k.g. per hectare. At fertility level of 50-25-25 k.g. per hectare of N, $P_205$, $K_20$ respectively, the yield of I.R.8 was recorded 4236 k.g. per hectare. At fertility level of 100-50-50 kg.per hectare of N, $P_205$, $K_20$ respectively the yield of I.R.8 was recorded 4966 kg./hectare.

I) Transplanting:

When the seedlings are 20-25 days old, these are ready for transplanting. Care should be taken while up rooting the seedlings and no damage to the roots should be done. Minimum time should be taken between uprooting and transplanting. Some tips of the leaves should be cut. The transplanting should be done with the help of two fingers and thumb and roots should not be pressed directly on the ground.

Plant population are essential to high yields and efficient utilisation of high application of fertilizer. Plant population can be higher during growing season when sun light is greatest and reduced when the seasons are cloudy and sunlight is reduced.

Spacing should be as follows:

| | Dry | Monsoon |
|---|---|---|
| Row to row | 6" or 15 cm | 8" or 20 cm |
| Plant to plant | 4" or 10 cm | 6" or 15 cm |

There should be two to three plants per hill. I.R.8 seedlings should not be transplanted deeply. It should not be more than 1" deep when puddle settles. Shallow planting enables establishment and early tillering which is necessary to good tiller development & synchronous

flowering. There should not be more than 2 inches water standing in the field at transplanting.

When the field is not transplanted in lines, see that there are atleast 40 hills/per square meter.

J) Top dressing of nitrogen:

General practice is to apply basal dressings to induce heavy tillering & top dressing to induce maximum fill of spikelets formed. To accomplish this with I.R.8 requires that good nitrogen supplies be available from transplanting to just at the time of panicle formation (floral initiation).

Nitrogen requirements in the early growth phases can probably be supplied by basal nitrogen applications while the maximum grain filling will be benefitted by fertilization after floral development has established the potential spikelets in the panicle. 20-25 kg. N /hectare from Ammoniam sulphate, calcium ammonium-nitrate or urea, as top dressing 5 weeks after transplatning or between 55-60 days after sowing may be applied. Use of ammoplios or nitrophos at this stage is not recommended.

K) Irrigation:

A well drained soil will give the highest yields. Water level should be maintained at about 2" to 4" depth after the seedlings have become well established. Where sulfide injury is prevalent, drainage during vegetative stage will prove beneficial.

L) Interculture:

Intercultivate the crop at an interval of 15-20 days to keep the weeds down and provide aeration to roots.

M) Yield:

Comparative data of I.R.8 and T.N.I (grain yield kg./hectare).

Comparative data
(Grain yield Kg./Hectare)

| Location | I.R.8 | T.N.I | Added N level |
|---|---|---|---|
| Rejehdranagar | 7,753 | 5,471 | 120 |
| Cuttack | 7,559 | 6,025 | 100 |
| " | 6,151 | 4,857 | 50 |
| Patna | 6,110 | 4,444 | 100 |
| " | 5,000 | 2,916 | 50 |
| Raipur | 6,173 | 4,978 | - |
| Kapurthala | 4,507 | 3,568 | - |

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# LESSON PLAN NO.9

1.Topic: Cultivation of high yielding paddy (I.R.8) - plant protection in paddy

2.No. of periods: Three of 45 minutes each(3rd period)

3.Objectives: To impart knowledge regarding plant protection of new high yielding paddy variety I.R.8.

4.Previous background: Trainees have learnt cultivation of local paddy as well as of I.R.8.

5.Teaching aids: Black board, samples and specimen of diseased plants, insectpests, charts and posters.

6.Presentation: A) Introduction:

Although plant protection is essential at both preventive and curative stages in all the crops but it becomes more and more desirable in high yielding varieties where the inputs involve lot of expenditure on the part of farmer. Moreover, the present high yielding dwarf paddy varieties are more susceptable to diseases & other insect pests as compared to local varieties. Plant protection in I.R.8 should be as preventive measure to insure good crop and high yields.

B) Use of chemicals:

Effective insect control will provide the I.R.8 rice crop the opportunity of making full use of the other inputs provided.

Experimental evidence indicates that granular formulations of endrin, dimethoate, diazinon or lindane are generally more effective in controlling stem borer than spray applications. Even liquid preparations applied in water can be expected to give better results than spray application. Sprays are more difficult to apply & are not as effective because they lack the systematic action of the insecticide that is obtained by application in irrigation water.

Spray schedules required applications every 10-15 days beginning at the 15th day. Rains which occur within six hours of application greatly reduce the effectiveness of the spray and necessitate a repeated spray immediately. Insecticides and their rates are as follows:

Plant protection schedule for I.R.8

| Stage of plant growth | Insect or disease | Fungicide and/ or insecticide | Quantity | Water required |
|---|---|---|---|---|
| Prior to sowing | | Captan or Thiram or Cereson(wet) | 50 gms/100 kg. 100 gms/100 kg. | |
| Nursery 15 day after germination | Stem borer Leaf hopper | Parathion or Endrin | 0.8cc/lit. 1.9cc/lit. | |
| 30 days after transplanting* | Stem borer | Lindane Granules in irrig. (6 or 10%)$H_2O$ | 2 kg. active/ha | 3-5cm in the field retained for atleast 3 days. |
| | | Endrin Granules (2%) | 2 kg active/ha | |
| | | Diazinon granules | 2 kg active/ha | |
| 60 days after transplanting | Stem border | Same as for 30 days | | |
| As insect appears | Leaf hopper | Sevin - Diazinon granules | | |
| | Cut worm | Malathion (50% wettable) | 300cc | 300 lit/ha |
| | Leaf Roller | BHC (dust) | 2 kg. active/ha | none |
| | Gall fly@ | Gamma BHC spray lindane, irrigation water£ | 1.9cc/lit 2 kg. active/ha | |
| | Khera disease | Sinc Sulphate Ca OH | 5 kg. per ha. 2.5 kg. | 150 gal. |

Note: * = or earlier if months are numerous
@ = 15 days in nursery and
£ = 15 & 35 days after transplanting.

Although soil application of Lindane and Endrin granules is the most effective control measure for stem borer - for reason of non-availability of these insecticides the following spray schedule is recommended:

| | | |
|---|---|---|
| Endrin | Shell endrex 2% EC | 1.9 cc/lit |
| Parathion | Folidol E605 E.C.46 7% | 0.8 cc/lit |

For effective control, the spraying is to be repeated once in two weeks as prophylactic and once in a week if the planting or flowering coincides with the peak emergence of brood.

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# LESSON PLAN NO. 10

**Topic:** Precautions necessary for laying out successful Agricultural demonstration plot.

**Objective:** To acquaint the trainees with the precautions necessary found in laying out Agricultural demonstration.

**Previous background** In the previous class we discussed about the objectives of laying out agriculture demonstrations and today I will discuss about the precautions necessary for the lay out of demonstration.

**Teaching aids:** i) Black board.
ii) Duster.
iii) Chalk.

**Presentation**

i) Introduction

In the field of agriculture demonstration play a very important role in the popularisation of new schemes(programmes). It gives an opportunity for learning by doing, it gives new knowledge and creates faith among the growers. And the following precautions should be kept in mind for the successful running of the programme

ii) New subject matter

1. Selection of the grower: The below given points should be kept in mind for the proper selection.
   a) The grower should be familiar with the objective of laying out demonstration i.e. Mexican wheat v/s local wheat variety cultivation.
   b) He should take keen interest in the demonstration.
   c) The cultivator should have patience to bear the adverse effects of unforeseen environmental factors.
   d) He should be laborious & should enjoy the faith & confidence of his neighbours.

2. Selection of the field:
   a) Site of the field: It should not be too far from the village but properly on the thorough fare.
   b) Levelled field: In an unlevelled field the fertility varies from one level to another level. So the field selected should be levelled.
   c) To avoid shadow tree in field: The demonstration field should be away from trees etc.
   d) Even fertility: Field should be of even fertility & the previous crop in the demonstration field should be the same.

3. Key points in laying demonstration:

   a) The area of the field should not be less than 1/10 of an area of each plot.
   b) The boundry of demonstration should be properly car marked by constructing the bund of the field.
   c) The demonstration plot should be separated by bunds.
   d) The irrigation should be given separately to each treatment.
   e) The different steps of the demonstration should be done in the presence of the cultivator & under direct supervision of the extension worker.

Summarisation

The following bottle necks are generally found in laying out demonstration.

i) One and the same cultivator should not be selected every year. Select interested person & who has patience to hear the adverse effects of unforeseen environmental factors and have confidence of villagers.

Questions:

a) What type of cultivator should be selected for demonstration?
b) What are the points to be kept in view in selecting the field?
c) What will be the effect if the field of uneven fertility selected?
d) What should be the area of each demonstration plot.

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## LESSON PLAN: No.11

1. Topic. Implements of Hoeing.

2. Time. One period of 45 minutes.

3. Objective: To acquint the trainees with the implements used for inter-cultivation between rows of plants to kill weeds to earth up the plants and to prepare soil mulch.

4. Previous back-ground: It is evident that the weeds are the robbers, they rob the farmer of his profits by reducing yields, by lowering the quality of the crop, by harbouring the insect that damage the crop and the trainees realise the importance of their destruction by mechanical and Chemical operations.

5. Teaching aids: 1. Models. 2. Charts. 3. Flannel strips 4. Black board.

6. Presentation:-

**Introduction:-** Cultivation is an operation that requires some kind of tool that will stir the surface of the soil to a shallow depth in such a manner that young weeds will be destroyed and crop growth promoted. The use of hoes generally begins soon after emergence of the young crop seedlings and for this purpose various types of bullock drawn or manually operated hoes are available.

**Scope of use:**

Wherever lime sowing is practical, intercultivation between rows of plants becomes essential to kill weeds, to earth up the plants and to prepare soil Mulch.

2. To promote emergence of young seedlings by breaking hard crust formed over the soil by rains and to pulverize the crust.

3. The wheel and hand hoes are also useful for vegetable and for flower gardening.

4. To make furrows and irrigational channels.

A. Singh hand hoe:

In a Bamboo handle of 1-1/2" drain and 6' length, three times made of 1/2" sq. rods having ends bents and pointed are fixed. It is suitable for hoeing in wheat and barley specially sown in lines with row to row distance of 9". The hoe is 6" width and works from 1-1/2" to 2½" deep. The duty of the implement is from 1/4 to 1/3 acre. Its cost is is Rs. 3.50 np.

B. Sharma hand hoe:

It also has a bamboo handle of 1-1/2" drain and six feet in length at one end of which shaped hoe is made of 1/8" thick sheet of 1-1/4" width. The maximum working width of the hoe is 6-1/2" and works in the soil, to the depth of 1½ to 2 ". It is also suitable for wheat and barley crops sown in lines. The duty of the implement is 1/4" to 1/3" acre per day and its cost is Rs. 3/-.

C. Wheel Hoe (Naini Type):

The wheel hoe is a simple, efficient and easily operated. Combination set of cultivator, hoe and pronged fork. Suitable both for garden as well as field crops. It has a three pronged fork, and reversible hoe combination of 8½" width which can be replaced by a reversible shovel with one side of 3½" and the other of 2½ width. It is useful for making furrows for seeding, weeding with the shovel, fork or sweeps, and for making fine soil mulch which helps to conserve moisture. The duty of the implement is 1/2 acre per day.

D. Naini type Hand Hoe:

It is simple in design with 6" wide high carbon steel blade fixed in a bamboo handle of 6' in length. It is useful for eradication of weeds and for pulverisation of soil to a depth of about one or two inches. It is used for interculture of cotton, maize, tobacco, vegetables and wheat, barley etc. It costs Rs. 3/- and it can cover an area of 1/3 acre per day.

**Akola Hoe:**

It is a bullock drawn three tined implement, with sharp triangular steel shares. The size of front share is 6½" x 5¾" and of two blade shares 6"x3¼" made of 1/8" of steel sheet. The body on which the tines are fixed is made from iron plates and hoes are provided to make the distance between the tines adjustable.

The duty of the implement is 1½ to 2 acres per day with a draft of 80 to 102 Kg. The cost of the implement varies from Rs. 20/- to Rs. 27/-.

**Source of availability:**

1. Sharma hand hoe:
   M/s Cossul and Co.Pvt.Ltd.
   14/78 Mahatma Gandhi Road, Kanpur.

2. Covt. Agr. Workshop,
   Talkatora Road, Lucknow.

Naini Type wheel hoe.
Naini hand hoe:
M/s Agr. Dev. Society
P.O. Naini., Allahabad.

**Summarisation:**

The hoes are labour saving devices, efficient and economical in their operational expenses in comparison to the prevalent indegenous practicals of cultivating and destroying weeds and grass around young plants, for pulverizing the crust and for thinning the broad casted crops.

**Reference:**


1. Agr. Engg: for Extension Workers by Sri D.N. Kherdekar.

2. Hand Book of Agriculture(ICAR).


**Assignment:**

To handle the different Hand Hoes in the field and to calculate their economics and observe their efficiency.

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# LESSON PLAN No: 12

1. Topic: Soil Turning Plough:

2. Previous knowledge: 1. Students know the country plough and soils of their area.

   2. Students have seen the original model.

3. Objective: To impart knowledge regarding soil turning plough.

4. Visual aids to be used: Chart, strips, board.

5. Presentation:

**Introduction: -**

The improved agricultural implements play a vital role in the agricultural production. For the successful raising of the crops at a low cost of cultivation the soil should be prepared well by means of improved implements. The yield depends much upon the condition of the seed bed. The knowledge of the improved implements is essential to get the maximum yield. With the advance of agriculture it has become very essential to every farmer to use improved agricultural implements. Improved implements make work easier, efficient and economic. The implement which can be repaired by the village artisan is preferred.

The soil turning plough stands first in order of priority. The mould board plough not only cuts soil but also inverts it. Hence it will bury weeds and stubbles of the previous crops. This will expose soil to the weathering agencies such as sun and air. There are many soil turning ploughs in use. The basic principles are the same. They vary in sizes, width and quality of steel.

**Different types of mould board ploughs:**

1. Meston plough.
2. Allahabad plough.
2. Cale "
3. Hindustan "
8. U.P.No: 1&2 "
6. Shabash Plough.
7. Wah Wah Plough.
8. Punjab senior and Junior plough.

Scope of its use:

The soil turning plough is common in U.P., Punjab, Rajasthan and Mysore.

Parts of the plough:

1. Mould board. 2. Frog. 3. Share.

4. Land slide. 5. Beam. 6. Handle.

Mould board:

The mould board forms the back of the share. It receives the furrow slice from the share and turns it. The mould boards of the various ploughs are made of the same shape with some modifications required for the specific area. Mild steel is used in the manufacture of the mould board of this plough. The mould board of the Hindustan plough is made of cast iron. The efficiency of this plough depends upon the working of the mould board.

Frog: This is a piece of metal to which the share, land slide, mould board and beam are attached. This is made of cast iron or welded steel.

Share: This is made of high carbon steel. This is a cutting edge of the plough. The main parts of the share are the point, the wing and the cutting edge of the throat. The penetration in the soil is done by the point.

Land slide: - The lower portion of the body which moves flush with ground, if the plough is well adjusted is called land slide. The landslide helps to counteract the side pressure exerted by the furrow slice on the mould board. It is made of mild steel.

Beam: The beam should be strong and should have enough clearance so that clods may pass freely under it. The beam is made of wood and connects the plough with the yoke of the plough. Sal wood beam is preferred. Size of it is about 3"x2½" x 10'.

Handle: It is made of mild steel flat 1½" x 3/8" or of wood 2" square at least. The handle is usually fixed to the body at an angle of 45° - 60°.

A hook is provided on the handle to tie the bullock rope to it. The length of the handle is about 35".

**Mould board ploughs Vs. Country plough:**

| | Mould board plough | Country plough |
|---|---|---|
| 1. | Inverts the soil. | Simply stires the soil. |
| 2. | Prepares a fine seed bed. | Prepares coarse seed bed. |
| 3. | Kills the weeds. | Does not kill the weeds effectively? |
| 4. | Requires additional implements for soil pulverisation. | The country plough performs all the functions itself. |
| 5. | Gives more yield. | Lesser yield as compared with cultivation by mould board plough. |
| 6. | It ploughs one acre in 10 hours working day and can control 12-15 acres annually: | It plougns 3/4 acre in 10 hours working day and can control only 8-10 acres annually. |
| 7. | Makes work easier, efficient and cheapest. | Does not work so easier and efficiently as compared with the mould board plough. |
| 8. | Ordinarily this is driven round and round along the periphery of the field slowly moving to its centre or Vica Versa. | It is driven in the parrallel direction or say that straight ploughing is done with it. |

Width of the furrow: The width of the furrow varies from 6" to 8". It is also called Horizontal Section 1/4", 3/8".

Depth of the furrow: 1/2", 3/4". The depth of the furrow varies from 5" to 9", depending upon the soil and its moisture content. The depth of the ploughing also depends upon the crops to be grown. The depth should be altered from year to year to prevent the formation of a hard pan.

Weight: The weight of the soil turning plough is about 35 to 50 lbs. It can very easily worked by a pair of bullocks.

Cost: The cost of the plough ranges from Rs. 20/- to Rs. 45/- with beam and handle.

Source of availability:

1. Cossul and Co. Kanpur.
2. Agricultural Development Society, Naini, Allahabad.
3. National Engineering Co. Ambala.
4. Workshop located in the concerned area.

References:

1. Hand book of Agriculture ( I.C.A.R.)
2. Agricultural implements for Indian Farmers (ICAR)
3. Agricultural Engineering for Extension workers by D.N. Kherdekar.

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I. HCH
II. ASAS
III. ASAS

# LESSON PLAN No: 13

Topic: Olpad Thresher.

Previous knowledge: Students known the threshers used in their respective area.

Objectives: To impart knowledge regarding the working of the implement.

Visual aids to be used: Strips, Flannelgraph, board.

After harvesting the next agricultural operation is of threshing the crop. In the old days the crop was threshed with a thresher made out of the branches of the tree. Then a rectangular frame of the bamboo poles was made and branches of the thorny bushes were fixed on it. Such type of thresher is still in a use in the Punjab, Haryana and Rajasthan. The threshing roller made of stone or concrete is used in the Southern Districts of Bombay. But such type of threshers are not efficient and economic.

The Olpad threshing machine is the most popular thresher in India. It is used almost in every part of the country. It consists of a series of notched discs placed on three axles which are fixed on an angle iron frame. An operator's seat is also provided on this angle iron frame.

At the back, a metal guard is attached so that there is no danger of the operator getting injured.

The harvested grain is spread on the floor at least (one foot) high. Then this implement is rotated over this with the help of a pair of bullock. Ordinary wheels are also provided on the Olpad thresher to facilitate its transportation. Some Olpad threshers are fitted with a rake on its back.

A pair of bullocks and two men can thresh with it economically. It can thresh as many as three time that the wooden thresher. The cost works out to only 75 NP for threshing half metric ton of wheat with this thresher, while for threshing the same quality and quantity of grain under bullocks' feet the cost works out to Rs. 1.30 Np.

Parts of the thresher:

1. Discs. 2. Axles. 3. Frame. 4. Seat.
5. Guard. 5. Spacers. 6. Bearings etc.

Discs: It has twenty serretted discs. These are made of M.S. plate 1/8" thick. These discs cut the wheat and does major operation of threshing. These can be made or repaired by the village artisan. The weight of the discs is about 130 Kg.

Axles: It has three axles. These are made of 1" or 1-1/4" square mild steel rod. The discs are fitted on these axles. These axles help in rotating the discs. The ends of the axles are turned on the lathe for the fitting of the bearings. The weight of these three axles is about 13 Kg.

Frame: It is made of 2" x 2" x 1/4" angle iron. It is called the body of the thresher. All the parts are fitted on it. It can be repaired or made by the village artisan. The weight of the frame is about 27 Kg.

Seat: It is made of wooden planks or iron. An operator of the machine sits on it. A man can control the bullocks sitting in this seat.

Guard: A guard is provided on the machine so that the operator may not injured. It also helps to keep the wheat under the thresher and does not allow it come out of the machine and put hinderance in the work.

Spacers or spools: These are fitted on the axles in fixing the discs. These are made of cast iron. The total no. of spools is 23. The weight of the spools is about 25 Kg.

Bearings: Bearings are used in fitting the axles to the frame. The axles move rapidly and with lesser animal draft with the fitting of these roller ball bearings. Six roller ball bearings are needed for fitting the one Olpad thresher. These are available in ready made form.

Cost: The cost of the Olpad thresher is about Rs. 350/-.

Source of availability:
1. Agricultural workshop GTC Batala (Pb.)
2. National Engineering Co. Ambala.
3. Agricultural Development Society, Naini, Allahabad.
4. Cossul and Co. Kanpur.

References:

i. Hand book of Agriculture ( I.C.A.R).
ii. Agricultural implements for Indian farmers.(ICAR).
iii. Agricultural Engineering for Extension workers by D.N.Kherdekar.

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# LESSON PLAN No.14

1. Topic: Spike Tooth Harrow.

2. Time: One period of 45 minutes.

3. Previous knowledge: The VLWs already know about the primary and secondary tillage operations and the agricultural implements used for them.

4. Objective: To impart knowledge regarding spike tooth harrow.

5. Visual aids: Diagram of spike tooth harrow showing various parts.
   ii. Flannel strips.
   iii. Black board.
   iv. One peg with clamp.

6. Presentation:

Introduction:

It is said that the "Finer the seed bed - the better will be yields" consequently it is necessary, for raising the per acre yield at a low cost of cultivation that improved agricultural implements are used. The harrowing operations play an important role in better farming for which several types of harrows are employed.

Scope of use:

i. The harrows are generally lighter than cultivators and tills the soil at shallow depth. The pegs penetrate in the soil from 1½" to 2½" deep.

ii. To level the ground and crush the clods.

iii. To prevent and destroy weeds.

iv. To cover the broad casted seed, fertilizer and manure.

v. To break the hardened soil and stir it to promote the germination of seed if there had been rains after sowing.

vi. To promote aeration and tillering.

## Description:

The spike tooth harrow has 25 to 30 pointed pegs or spikes fixed on a framework by tooth clamps. A lever is provided to change the angle of spikes to suit the hardness of the soil and type of the work to be performed. The lever also enables the harrow to be clear of trash and weeds.

## Details:

| | | |
|---|---|---|
| 1. Width of harrow | : | 3'-6" |
| 2. No. of spikes. | : | 30- H. C. steel. |
| 3. Length of pegs. | : | 8" |
| 4. Ground clearance: | : | 7" |
| 5. Depth of penetration of the spikes | : | $1\frac{1}{2}$ to $2\frac{1}{2}$" |
| 6. Total weight: | : | 42 Kg. |

## Adjustments:

1. The angle of the spikes is adjusted by means of lever.

2. For deep penetration the spikes should be perpendicular.

3. For extracting the weeds from clods the spikes should be bent forward and for harrowing purposes they should be bent backwards.

## Precautions:

The implement should be adjusted according to the job and all the bolts and nuts should be tight and pegs properly clamped.

The pegs should be well pointed and of the same dimentions.

All pegs should penetrate in the soil evenly and if necessary the adjustment should be made.

If necessary the harrows may be loaded with weight for deep penetration.

Duty of the Implement:

The implement can cover 4 to 5 acres of land in one day of 8 hours.

Draft of the implement:

The draft of the implement is 57 to 80 kilograms and it can be very easily worked by an average pair of bullocks.

Cost:

| | | |
|---|---|---|
| 1. The cost of spike tooth harrow with 30 teeth | - | Rs 110.00 |
| 2. With 25 teeth: | - | 80.00 |

Source of availability:

1. M/s Cossul & Co. Pv. (Ltd.) 14/78 Mahatma Gandhi Road, Kanpur.

2. Govt. Agricultural Workshop, Talkatora Road, Lucknow, U.P.

References:

1. Agricultural & Engineering for Extension workers by D.N.Khardekar.

2. Catalouges.

Assignment:

1. To find out the duty of the implement during preparation of the seed.

2. To adjust the depth of the implement during the operation for different job.

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## LESSON PLAN No:15

1. Topic. Mc' Cormic Cultivator.

2. Period. One ( 45 minutes).

3. Previous knowledge: The VLWs know about ploughing and mould board ploughs, and necessity of breaking the clods for seed bed preparation. The necessity of inter-cultivation in standing crops for weed control and for promoting crop growth.

4. Objective: To impart knowledge about Mc' Cormic Cultivator and its various adjustments and objectives.

5. Aids to be used: 1. Black board. 2. Hide strip.

3. Poster. 4. Chart.

5. One shovel.

6. Presentation. Introduction:

For the successful raising of the crops at a low cost of cultivation it is necessary that the seed bed is properly prepared by means of improved implements and also in secondary tillage operations they should be used for better and economical results.

7. Objective of cultivator: 1. After ploughing, the next operation undertaken by a farmer is of breaking the clods into small pieces which is done by means of implements called cultivators. Cultivators are usually lighter than soil turning ploughs and heavier than harrows and hence work the soil deeper without turning it. It can work the soil $2\frac{1}{2}$ to 3" deep, pulverize it, cut the weeds and thus it prepares a good seed bed.

2. To destroy weeds and promote crop growth which is done prior to sowing or after the emergence of the young crop seedlings.

3. To carry out the inter cultivation in the crops, sown at a distance of 2 to 2½ feet in line to line.

4. a. Loose mulding on surface.

   b. Retaining rainfall.

   c. For developing plant food.

   d. To aerate the soil to allow oxygan to penetrate soil.

   e. To promote activity of micro_organisms.

5. To mix in the soil the broadcasted mannure and fertilizers.

Description:

Many types of cultivators are in use ranging all the way from the small hand_pushed garden cultivator suitable for the family garden to large four-row tractor anointed cultivators capable of cultivating 60 to 80 acres a day. The type and size needed will depend on the acreage; the kind of crop, soil type and conditions and type of farming practised and the land of power available.

In our conditions the animal power is generally available for which any cultivator having the draft, from 4 Kg to 100 Kg would be suitable.

The Mc' Coromic Cultivator which is generally used is a five timed cultivator, the distance between the lines of the implements can be adjusted and alternate with the help of a lever_arrangement.

Parts of cultivator:

| | |
|---|---|
| Number of shovels | - 5. |
| Size of shovel | - Length 9" width 3" Thickness 3/16" made of high carbon steel. Double pointed with reversible device. |
| Shank | - 5 : Model steel with three holes each. |
| Lever and Ratchet. | - For width adjustment. |
| Gange wheel. | - For balancing the implement. It should not be used for depth adjustment. |

Frame - Mild steel.

Other details: -

1. Minimum width of coverage - 12"
2. Maximum width of coverage. - 24"
3. Depth of furrow. - $2\frac{1}{2}$ to $3\frac{1}{2}$"
4. Ground clearance. - 9"
5. Weight of cultivator. - 37 Kgs.

Duty of the implements:- The cultivator can cover an area of $2\frac{1}{2}$ to 3 acres for seed bed preparation intercultivation etc. per day ( 8 hrs.).

Draft of the Implement:-

The draft of the implement varies from 90 to 150 lbs. in accordance with the condition of the soil and type of the work.

Adjust ment:

Width adjustment: 1. The distance between the tines of the implement can be adjusted or alterned with the help of a lever. In inter cultivation the distance should be adjusted in accordance with the crop yields.

Furrow depth adjustment:

1. The implement is hitched to the yoke with an iron chain, and by increasing the length of the chain the depth of furrow is increased and for shallow furrow the process is reversed.

2. There are three holes in the shanks and by fixing the shall in the lower hole of the shank the depth is increased and can be decreased by reversed process. All the five shovels should be uniformaly touching the ground after adjustment.

Comparative:

Economic Aspects:

For seed bed preparation. and inter cultivation:

| | Particulars. | Desi plough. | MC1 Cormic Cultivator: |
|---|---|---|---|
| 1. | Bullocks charges. | 5.00 | 5.00 |

| | | |
|---|---|---|
| 2. Labour charges. | 2.00 | 2.00 |
| 3. Depreceation | 0.10 | 0.25 |
| 4. Expenses for one day. | 7-10 | 7-25 |
| 5. Duty of the Implement. | 3/4 acre | 3 acres. |
| 6. Expenses for one acre. | 9.48 | 2.42 |

It is evident that the operations by Mc, Coromic cultivator are economical.

Cost of the Mc, Coromic cultivator: Rs. 85.00

Source of availability:

1. Govt. Agricultural Workshop Talkatera Road, Lucknow:

2. M/s Cossul and Co. 14/78., Mahatma Gandhi Road., Kanpur.

References: 1. Agricultural Engineering for Extension Workers. By D.N. Kherdekar.

Assignments:

1. To find out the duty of the implement by field operations.

2. To make depth and width adjustments for different spacing of crops.

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# LESSON PLAN No:16

1. Topic: High Yielding varieties Example Paddy - Taichung Native-1(Continued)

2. Number of periods allotted: One ( 45 minutes ).

3. Objectives: To add new knowledge on high yielding varieties.

4. Previous background: Previous class on Taichung Native-1 in L.P. No:3.

5. Aids to be used: Black board. Chalk pencils.

6. Introduction:- Already given in L.P.3 which may be consulted and recapitulated for today's class.

7. Presentation:- Let us brush up the previous knowledge already gathered on the High yielding variety e.g. Taichung Native-1. Today I shall discuss an interesting aspect of effect of environment on the production of Taichung Native-1.

   a. Environmental factor have no direct effect upon the genetic make up, but they exert a profound influence upon the expression of its heredity.

   b. A plant is effected by amount of heat light, moisture, and nutrient available to it and by the degrees of activities of insect pest and diseases.

   c. Environment has got great influence to play upon the internal physiological process of the plant.

   d. Temperature has nothing to do with the photosynthetic activities of rice plants but temperature co-efficient for respiration of rice plant is generally accepted as 2, through it may vary according to growth.

   e. And this has an important bearing on dry matter production of rice plant.

f. In a few weeks after transplanting and in the midst of rigorous tillering the main plant sprouts a Head and this occurs in seedling when planted after 4 to 5 weeks from the date of sowing in the nursery bed.

g. The cause of untimely heading is due to

i. old seedlings.

ii. under-nourishment in the seed bed

iii. High temperature prevailing during early stage of growth.

h. In India where rice has to be planted in June ( ideal) after Monsoon starts and harvested from September to December, varieties which can make most of low light insenties, long days and rain during flowering time need to be adopted. Even if planting is delayed these non-sensitive long maturing varieties will give higher yields.

i. Non-lodging character is the most important single character in rice contributing to Higher Yield.

<u>Summarisation and Recapitulation:</u>

1. Timely nursery-bed preparation is of paramount importance to guard off adverse effects of environment.

2. Timely transplanting also cannot be overemphasized to avoid pre-mature heading.

3. Breeding for strong-straw is of prime importance for increasing per acre yield.

<u>Testing and check-up:</u>

1. Enumerate the effects of environment on the yield of High yielding varieties.

2. How planting of seedlings can be adjusted?

<u>Assignment:</u> You should write an essay on the influence of environment on the cultivation of high yielding varieties.

<u>Reference:</u>- U.S.D.A. Agri. Hand Book No:289.

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LESSON PLAN No 17

1. Topic — Working of a cooperative seed store.

2. Importance of the topic: — Most of the problems of the agriculturist members of the societies are solved through cooperative seed stores locally in respect of fertilizers, improved seeds and agricultural impliments.

3. Objectives: — To acquaint the trainees with the working of cooperative seed stores, so that they may be able to render effective help to the villagers in this respect

4. Aids to be used: — Chalk board and flannel strips.

5. Previous background: — Some knowledge about a coop. seed store has already been imported.

6. Presentation: — Cooperative seed stores are run and managed by Sahkari Sanghs. They deal only with members of coop. socs. and individual members of Sahkari Sanghs. Now in order to have a knowledge about the working of a coop. seed store, it would be necessary to study it step by step i. e. opening of the seed store, seed distribution programme, seed realization programme, storage of the seed and the closing of the seed store.

<u>Opening of seed store:</u>
After a programme for opening the seed stores is chalked out by the D. C. O. in consultation with D. A. O. for all the seed stores of the District.

Opending officers for opening the seed stores are appointed by the D. C. O.

The seed stores are opened in the presence of 2 members of board of Directors of the Sahkari Sangh.

Cent per cent stock of the seed store is weighed.

An opening report alongwith the weigment sheets is prepared by the opening officer in a prescribed proforma.

Seed distribution programme:

1. A seed distribution programme is prepared for all the affliated societies in the meeting of the Board of directors of the Sangh.

2. The demand of seed from the members are collected on a prescribed proforma by the seed store staff before the seed distribution.

3. The actual seed distribution starts according to the scheduled programme.

4. The member is required to execute a board on prescribed proforma before seed is issued to him. He is also given a 'purzi' for the seeds issued to him by the seed store incharge.

5. Subsequent entries are made in the records of the seed store i.e. in Gallah Bahi and Sawai Register by seed store incharge.

6. A weekly seed distribution progress report is submitted to D.E.O. by the seed store incharge.

7. After the final seed distribution a survey report for all the shortages and damages caused to seeds etc. by the Incharge.

Seed Realization:

1. Again a programme is chalked out for all the societies for the return of the seed with Sawai.

2. The seed is realized in the presence of the Sarpanch or one of the Panches of the societies concerned and the members of the Board of Directors.

3. A receipt is given to the member for the seeds he has returned to the seed store by the Incharge.

4. Necessary entries are made in the records of the seed store by the seed store Incharge.

Storage of the seed.

1. Before storage the bags are dried in sun and disinfected. The seed store building is also repaired and disinfected.

2. The seeds are cleaned, categorised and put in bags in standard weights.

3. At least 10% of Bhusa of the total weight of the seeds is required for the safe storage of the seed.

Closing of seed stores:

1. The seed stores are generally closed by the 1st week of June.

2. A programme for the closing of seed stores is chalked out by the D.E.O. for all the seed stores of the District.

3. Closing officers are appointed by the DEO

4. Total stock of the seed at the seed store is weighed and properly stored in the godown in the presence of the closing officer and 2 members of Board of Directors.

5. After proper storage of the seed, the godown is locked and sealed by the closing officer.

6. He also prepares a closing report on the prescribed proforma.

Testing and check up:

1. How seed is issued to a cultivator at a coop. seed store?

2. How much Bhusa is required for proper storage of seed?

3. What is difference between a Purzi and Receipt issued to a member at a coop. seed store?

Reference: Extension Mannual on Cooperation.

Assignment: Study of a local cooperative seed store.

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# LESSON PLAN No.18

1. Topic. Loaning system in a service cooperative society.

2. Objectives: To acquaint the trainees with the system of loaning in a Service Coop. Socy., so that they may be able to guide the Socy. as well as its members.

3. Previous background: The trainees have been given some background about the working of a cooperative socy.

4. Aids to be used. Chalk board, flannel strips and graphs.

5. Presentation: Besides providing credit to their members, service cooperatives have to pay special attention to the intensification of agricultural production by inducing them to adopt improved agricultural practices. It has got both agriculturists as well as non-agriculturists as its members. Thus a service cooperative advances following four kinds of loan to its members.

1. Short term crop loan-

a. It is for the agriculturist members of the society.

b. It will be advanced to member in the light of the cost of production calculated in his production plan both for Rabi and Kharif crops.

c. It will be according to the cash credit of the member. This cash credit will be fixed having in view his cost of production, repaying capacity and 8 times of the paid up share capital whichever is less.

d. He will have to execute an agreement as well as pronote in this connection.

e. For Rabi requirement, a member can get this loan from 1st Sept. to February and will have to repay this

loan by 30th June, by selling his produce to the cooperative marketing society. For Kharif requirement this will be available from 1st March to 31st August.

f. This sort of loan as for as possible will be advanced in kind in the shape of seeds fertilizers and agril. implements.

g. Two surities will be required to be given by the members to get this loan.

2. Short term ordinary loan -

a. This sort of loan is advanced to non-agriculturist members associated with agricultural industries.

b. This loan is advanced for a period of one year.

c. A member will have to give two surities to get this loan.

d. This loan too will not exceed 8 times of the paid up share capital of the member concerned.

e. The cash credit of a member in respect of such loan will be fixed having in view 1/3 of the total price of the tools, cattle and trees etc. belonging to a member plus 1/6 of his total annual income minus outside loan.

f. The maximum limit for this loan is Rs.300.00

3. Medium term loan.

a. The need of a member for this loan will be made out by his production plan.

b. Such sort of loan is advanced for improvement of land, for Medbandi, for laying out of orchards, construction of wells, installation of Rahat, Pumping set and for the purchase of bullocks and milch cattle.

c. This loan will be advanced for a period from 15 months to 3 years.

d. Upto Rs.500.00 this loan will be advanced just like short term crop loan on the security of two surities. If the amount of loan exceeds Rs.500.00 the member will be required to mortgage his land in favour of the society and get the mortgage deed registered. He will also have to excecute a pronote for the same.

e. The maximum limit of such a loan for a member is generally Rs.2000.00

4. Secured loans-

a. This sort of loan is not in any way related to the cash credit of paid up share capital of a member.

b. This loan can be advanced on the security of the fixed deposit of a member upto 75% of the deposit.

c. On the security of Govt. papers, promissory notes and debentures of land Development Banks.

Testing and check up.
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1. What is difference between a short term crop loan and short term ordinary loan?

2. What do you understand by cash credit of a member in a service cooperative and how it is fixed in respect of crop loan?

3. How a medium term loan is advanced to a member in a service coop. socy?

8. Reference:

1. Margdarshika of a Sabha Sabkari Samiti.

2. Bye-laws of a Sadhan Sahkari Samiti.

9. Assignments: Study of different kinds of loans advanced to members in a local service coop. socy.

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# LESSON PLAN NO.19

Topic: Signs of pregnancy.

No. of periods: One (of 45 minutes)

Objectives: 1. To make the students understand about the signs of pregnancy.

2. To help them to be able to guide the village ladies about the signs of pregnancy.

Previous knowledge: They already know something about the signs of pregnancy.

Aids to be used: Chalk and Black board.

Presentation:

1. Introduction: During first three or four months it is not always easy for the woman to know definitely whether she is pregnant or not. She may be pregnant without showing some of the usual signs and symptoms or she may show some of these without being pregnant. Each symptom considered alone has not much meaning but when they are all thought of together it is usually easy to decide whether she is pregnant or not.

2. What are the general signs and symptoms of pregnancy?

Signs of pregnancy

1. Amenorrhoea.
2. Tenderness and fulness of breasts.
3. Morning sickness.
4. Enlargement of the abdomen.
5. Special skin marking.
6. Foetal movements.

3. What is Amenorrhoea?

Amenorrhoea: It means the missing of the usual monthly period which is often the first sign that the mother notices. This is the indicative of pregnancy though it is not a sure sign as the periods may be missed due to other causes. These may be illness, weakness, undue fear of pregnancy or even the excessive desire for a child.

However, in healthy women who have been having regular periods, this sign should be considered of great importance. If the period is missed for a second time, it is of greater significance.

4. When the tenderness and fullness of the breasts during pregnancy?

Tenderness and the fullness of the breasts can often be noticed as early as the third week after conception. At about the third month, the breasts begin to enlarge visibly and the dark colouration round the nipple increases and spreads. A watery secretion from the breasts is seen in some women from about the seventh month or even earlier.

5. Why the morning sickness is left during pregnancy?

Morning sickness: Because there are some physical changes going on in the body of the woman therefore she may experience nausea, vomiting and loss of appitite by about the fourth week. At this time mother may also wish to pass urine very frequently.

6. When the enlargement of abdomen begins?

Enlargement of abdomen: As the uterus or womb increases in size, the abdomen also enlarges. This is clearly noticed after the fourth month. The uterus reaches the upper leel of the Pelvic bone by the twelvth week. After that she feels as if there is something hard in the lower abdomen. At six months the uterus is at the level of ambilicus and at the end of the ninth month it reaches the level of the xiphisternum. After that the uterus falls forward and descends a little.

7. What are the special marking on the skin during pregnancy?

Special skin marking: During pregnancy some lines may be noticed on the skin of the lower abdomen, thighs and breasts. The colour of the marks varies from women to women. In fair skins they are pink and in darker skins brown. After the birth of the baby these lines become whiter.

8. When the baby begins to move?

Foetal movements: At the beginning of the fifth month the mother feels the child moving inside.

At first these movements are very faintly and gradually they become more definitely during the later months of the pregnancy.

9. <u>Recapitulation and testing of the knowledge.</u>

1. What are the signs of pregnancy?
2. How we can assure about the true pregnancy?
3. What is meant by Amenorrhoea?
4. What are the stages of the enlargement of the abdomen?

10. <u>Relation to the next lesson.</u>

The trainees will be taught about the Antenatal care in the next lesson.

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# METHOD DEMONSTRATIONS

The topics of method demonstrations are according to the subject-matter area of each Instructor-trainee. A sample of a few have been selected to be included in this booklet. The participants prepared outlines of their plans and presented them by turn to a group of fellow-workers. Through analysis and discussion they were able to develop skills in this Extension method.

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# METHOD DEMONSTRATION

**Topic:** Japanese Method of raising Paddy Nursery.

**Subject:** Agriculture (crop husbandry)

**Objectives:**

1. To get strong, stout and healthy seedlings.
2. To prevent erosion by heavy rains.
3. To remove weeds from the nursery easily.
4. To increase the Paddy yield per acre.
5. To increase the production of Paddy as a whole.

**List of equipment:**

1. Paddy seed 1 Kg.
2. Common salt 0.4 Kg.
3. Spade - 1
4. Khurpa - 1
5. Organic Manure (F.Y.M/Compost = 40 Kgs.
6. Fertilizers- CAN=$\frac{1}{2}$ Kg. & S/P=$\frac{1}{2}$Kg.
7. Ash - 10 Kgs.
8. Watering Kan(Hajjara)
9. Water
10. Measuring tape-1

**Demonstration Bread down:**

| Steps | Key points |
|---|---|
| 1. Take the water in a bucket, put salt in it and stir it to make the solution. | This salt solution should be 10% |
| 2. Put the paddy seed in the salt sol. and stir it with your hands properly. | The seed should be thoroughly stirred. |
| 3. Remove the floating material & pour the salt sol. in another bucket. | Preferably it should be seived with the help of seive. |
| 4. Wash the heavy seed with pure water and dry it in shade. | |
| 5. Divide the area to be sown in to compartments. | Each bed being 25'x4' and 3" high above the ground level. |
| 6. Leave a space of 1' in between two beds. | It will help in working [illegible] in beds & weeding. |
| 7. Level and dress the beds properly. | |

| | |
|---|---|
| 8. Spread well rotten organic manure on each bed. | About 20 Kgs. per bed. It should be well rotten & fine. |
| 9. Broadcart ½ Kg. of mixture of CAN & S/P in the ratio of 50:50. | It should be broadcasted evenly. |
| 10. Spread fine ash on the beds. | About 5 Kgs. per bed. |
| 11. Broadcart seed over the beds properly. | ½ Kg. per bed. |
| 12. Again spread fine compost on the beds just to cover the seed. | It should form alayer of 1/4" in thickness. |
| 13. Sprinkle water on each bed slowly & slowly with the help of water Can. | Care should be taken that the water is not thrown upon the beds. |

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# METHOD DEMONSTRATION

**Topic:**
1. Study of Junior Wah Wah cultivator with different attachments.
2. Opening, fitting and adjustment of cultivator and its attachment.

**Object:** Agricultural Engineering.

**Why the subject is important**
1. To explain its parts, material used and durability.
2. To demonstrate the multipurpose use of Tool Bar.
3. To make conversant for opening, fitting and about various adjustments of the cultivator.
4. To save time, money and drudgery of labour.

**List of equipment & material used.**

| | | |
|---|---|---|
| 1. | Junior Wah Wah cultivator | 1 |
| 2. | Wah Wah Plough | 1 |
| 3. | Seeding spout | 1 |
| 4. | Adjustable wrench | 1 |
| 5. | Set of double ended spanner | 1 |
| 6. | Oil can. | 1 |
| 7. | Scale | 1 |
| 8. | Wheat seed | 1 Kg. |
| 9. | Fertilizer | 1 Kg. |

**Demonstration Break down**

| STEPS | KEY POINTS |
|---|---|
| CULTIVATOR | |
| 1. Handle should not be removed. | 1. The bolts and should be kept in a pan of oil. |
| 2. Tool Bar with 5 holes on either side for width adjustment of the lines in accordance with the distancing of crop rows. Centre to Centre distance of holes spacing is $1\frac{1}{2}$". | For inter-cultivation the distance of the tines should be adjusted in accordance with the spacing of the rows. |
| 3. Three Reversible High Carbon steel shovels of 9" length, 3" width and 1/4" thick. | All the three shovels should touch the ground evenly after adjustment. |
| 4. Tines are made of Mild steel. | |

| | |
|---|---|
| 5. Beam-9' to 10' long with 3 or 4 holes for adjustment of depth etc. | The shavels should be sharp to minimise the draft . |
| 6. Duty of the cultivator $2\frac{1}{2}$ to 3 acres. | |
| 7. Cost of the cultivator 38.50 without Beam. | |
| 8. Draft 35 to 50 Kg. | |
| 9. Adjustment of Depth.<br>a) The length of the hitch should be increased.<br>b) By holes in the beam. | The height of the Beam should be adjusted according to the size of bullocks.by holes of bracket.. |

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# METHOD DEMONSTRATION

**Topic:** Nutritious Khichari.

**Subject:** Food & Nutrition.

**Aims:**

1. To teach the trainees about the preparation of nutritious Khichari.
2. To teach them about the nutrative value of mixed & well balanced diet.
3. To teach them about the methods of cooking and processing without destroying the nutrients of food.

**Equipment required:**

1. Stainless steel deghchi with lid = 1
2. Frying-pan & Karchi = 1
3. -do- thalies = 1
4. Jug = 1
5. Barin = 1
6. Bowls (big) = 2
7. Plates = 2
8. Spoons = 2
9. Glass = 1
10. Knife = 2
11. Stove & pin = 1
12. Duster = 1
13. Match box = 1
14. Balti with water = 1
15. Kerosin oil = 1 bottle.
16. Silwata (grinder) = 1.

**Material:**

1. Ghee = 75 grams.
2. Rice(Basmati) = 500 grams.
3. Pulse Moong Dali = 125 grams.
4. Cabbage = 125 grams.
5. Cauliflower = 125 grams.
6. Peas = 250 grams.
7. Tomato = 125 grams.
8. Carrot = 125 grams.
9. Groundnut(rosted) 50 grams.
10. Til white = 25 grams.
11. Onion = One piece.
12. Ginger = One piece.
13. Dhania green leaves & green chilies = a few.
14. Salt = 2 tea spoons
15. Peper= $\frac{1}{2}$ " spoon.
16. Zeera= $\frac{1}{2}$ " "
17. Tej pati = 20 grams.
18. Water = $1\frac{1}{2}$ Kilogram.

Demonstration Break down:

**Steps**

1. Pick the rice and pulse and wash them softly (separately)

2. Wash the vegetables two or three times in water.

3. Put the vessel or deghchi on fire. Put ghee into it and fry a little the onion and ginger in it which has been cut in small pieces. Then put the water into it and let it boil.

4. Put the pulse in that boiled water, cover it and allow it to cook.

5. Cut the vegetables and put it into that pulse when the pulse is cooked a little & cover it.

6. Add the rice in to it when the pulse and vegetable is half cooked. Also add the salt, peper and Tejpati in to it.

7. Grind roasted til and groundnut a little and put them in to that Khichari and let it be cooked until it is quite ready.

8. Cut the tomato, green chilies and Dhania leaves and add them in to the Khichari and remove it from the fire.

9. It is ready to be served after a while.

10. It is a very good nutritious and well balanced food, containing sufficient protein, carbohydrate, fat, vitamins and mineral salts.

**Key points**

1. Do not wash rice and pulse very much.

2. Wash the vegetables before cutting.

3. Do not fry too much the onion and ginger.

4. Onion and ginger should not be fried too much.

5. Do not allow any food to be cooked uncovered so that the oxelic acid may not evaporate.

6. Do not put the pulse in to cold water.

7. Do not keep for a long time after cutting the vegetables.

8. Do not cook for a long time. It destroys all vitamins.

9. Do not put tomatoes, green chillies and dhania leaves with other vegetables but put them when Khichari is to be removed from the fire to preserve Vitamin C.

10. Do not put too much spices, it destroys the colour, taste and usefulness of the food.

11. Do not add too much water which either takes too long time for a food to be prepared or it has to be removed because it wastes the nutrative value of the food.

12. Serve the food hot and do not heat it again & again.

13. A well mixed diet supply us all the nutrients which are most important for our health.

## METHOD DEMONSTRATION:

1. Subject: Carrot Jam.

2. Why the subject is important?

   i. Good source of Vitamin C

   ii. Carbohydrate (sugar)

   iii. Utilisation of fruit in another season.

3. Place, dated and time: Nilokheri.

4. List of equipment and material needed:

   1. Carrots - 1 kilo.
   2. Gur - 100 to 750 gms.
   3. Citric acid- 20 gms.

5. Equipment to be required:

   1. Bhagona stainless steel - 1
   2. Stone - 1
   3. Thalli - 1
   4. Lid of the Bhagona.
   5. Knife - 1
   6. Jar - 1
   7. Kachi stainless steel - 1
   8. Match box - 1
   9. Duster - 1

| 6. Demonstration break-down: | Key points: |
| --- | --- |
| 1. Wash the carrots well. | 1. Try to avoid rotten carrots. |
| 2. Peel the fruits and grade the carrot. | 2. Put into the thali |
| 3. Put the graded carrot into Bhagona. | |
| 4. One layer of carrot | |

in the Bhagona needs one layer of sugar. Repeat it twice or thrice.

5. Let it be in dry and cool place in the kitch through out the night

6. It should be done one day before.

So that carrot absorve sugar.

7. Put the Bhagona on stove and boil till the end point reaches. Add citric and stir. Stir till the water may not dry.

Citric acid for its preservation.

8. Let it cool. Fill in the jar, jar should be sterelised well.

Vitamin C helps to prevent the disease called scurvy.

It is also important for eye-sight.

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# WORKSHOP ON VISUAL AIDS

Audio-visual aids are essential for good teaching. No Extension worker denies this fact but inspite of this it has been observed that they are not being used to the extent, they should be used by the field workers. One of the many factors responsible for this situation is that Extension workers have not been exposed to the possibilities that are available to them through the use of visual aids. Many of them are not aware of the vast opportunities to make use of these teaching materials in field situations.

Keeping these factors in view an effort was made through a two-day workshop on audio-visual aids to provide an opportunity to the participants to try out their creative talent and intelligence in this field. The objectives of the workshop were as follows:

1. To create an interest in the importance of audio-visual aids in good teaching.

2. To make the participants feel that within available resources, it is possible to prepare visuals.

3. To help them to develop a few skills in the preparation of visuals.

4. To provide them an opportunity to design and prepare visuals for their own lesson plans.

To achieve these objectives, the participants were provided a theoretical background of general principles relatimg to the preparation, selection and use of audio -visual materials. Lecturer in Audio-visual aids had earlier given talks on the communication process with special emphasis on the following topics:

1. Process of communication in teaching - nature and importance of communication, key elements of communication.

2. Psychological basis of audio-visual materials - their role in communication.

3. Audio-visual materials in Extension teaching - significance of audio-visual communication in increasing agricultural production.

4. Various audio-visual materials - their advantages and limitations.

This provided a broad frame-work of the field of audio-visual attention to the participants.

During the communication workshop the members of the teaching staff gave brief talks on the following specific aids that are mostly found useful in class room teaching: posters, charts, flash cards and flannelgraph.

In addition to these exposures a practical demonstration of preparing visuals without the help of the Artist helped the group to learn the simple techniques involved.

Organisation:

The group was divided into two sub -groups. A consultant was provided to each group and the help of an artist was also given to each group to enable them to learn the techniques of preparing simple visuals with the available materials.

Selection of theme:

The group met in the afternoon to decide on a common theme for preparing visuals. After a prolonged discussion, the group came to the conclusion that it would be better if each group prepared a set of flash cards in addition to some visuals for their class room presentation of lesson plans. The choice was left to the individual group. Ultimately they came out with the following topics for the preparation of a set of flash cards each individual would prepare atleast one card in the group of the set of flash cards.

| Group No.I | Group assignment | Consultant |
|---|---|---|
| 1. Sh.Ishwar Dayal<br>2. " Ram Janam Singh<br>3. " S.K.Batta<br>4. " Swarn Singh Natt<br>5. " B.S.Nag | Rat campaign | Sh.C.L.Gupta |
| **Group No.II** | | |
| 1. " Rajpal Singh<br>2. " S.M.L.Asthana<br>3. " G.S.Sandhu<br>4. Mrs.Virinder Kaur<br>5. " Trilochan Kaur Paul | Planning a kitchen garden | " T.M.Dak |

The second day was spent in the practical session for the preparation of the flash cards. The artist helped them to give shape to their creative thinking to slect proper colour scheme etc.

Presentation:

In the afternoon, the each group presented the

set of flash cards to the entire class. The group gave emphasis to the following points:

1. Criteria of selection of visuals.

2. Selection of the idea.

3. Effectiveness of the visual.

After each presentation the visuals were analysed by the members of the teaching staff. The reactions brought out by the participants and the staff gave the impression that the workshop was successful in achieving its objectives. The two days session gave sufficient education to the participants to discriminate between good and bad quality of visuals in extension work and their use.

Comments:

1. Communication workshop was successful in achieving its objectives.

2. Participants had a feeling of satisfaction about the use of visuals after the workshop was over.

3. Many participants mentioned that the time devoted for the workshop should be increased.

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# VILLAGE PRACTICALS

A few studies made by the group have been included in this portion of village practicals. The assignments cover a wide area consisting of farm production plans, case studies , method demonstrations and some projects. Out of these a study has been made of high yielding varieties in a small group of farmers. Their reactions towards growing these varieties have been observed which are very informative and interesting.

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## STUDY OF AGRICULTURAL IMPLEMENTS IN VILLAGE BHAINIKHURD.

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### 1. Introduction:

The importance of the role of improved agricultural implements in increasing the efficiency of farming is well recognised. In the past years a popularisation programme of improved agricultural implements was launched by giving a grant in aid of 50% and some agricultural demonstrations were conducted to educate the farmers as to the utility and efficacy of soil turning ploughs.

**2. Objective:** The primary aim of the study was to assess objectively the method of working of the programme as well as its physical achievements and the various ways which may be adopted for popularising various implements in the village among the farmers. The following finding reveals the progressive use of the improved implements. The description of which was obtained through a cross section of the village with the various land holdings of the cultivator.

**Main Findings:** About twenty farmers in all have been interviewed for this purpose. It is found that the mould board plough is a commonly accepted by all the farmers irrespective of the size of land holding. In certain cases Disc Harrow can also be noticed particularly among farmers having more than 10 acres of land. Same is the case with regard to the seed drill. Two farmers have got the Neco seed drill with them preferably with those having more than 25 acres of land. Panchayat being parental body does also have one seed drill. It is also interested to note that there is no other implement used or purchased in the villages such as cultivator, hoe, thresher etc.
/surprising It is / that inspite of its usefulness, cultivator is not at all being used by the
/of farmers. The need/thresher is very commonly felt by most of the farmers.

**The indigenous implements:-** Implements like Desi plough for ploughing, Khurpi for hoeing and bullocks for threshing are still common with the farmers through they have intensively and extensively turning the soil with the soil turning plough and it is observed that all the farmers have soil turning ploughs.

## Provision of spare parts and repairs of improved Agricultural Implements:

There is no agency for supply the spare parts needed by the farmers and they have to procure them from Karnal and they have some complaints that they did not get them of good quality. In our opinion with the increasing use of Implements in the village a comprehensive and adequate arrangement for providing this facility should be taken up by cooperative society or workshop wing attached to E.E.I.

There are two artisans namely Gopal Ram and Bal Kishan who undertake minor repairs of Agricultural Implements and for major repairs the farmer has to go to Karnal. These artisans are not trained to carry out the repairs of improved implements such as disc harrow etc. Consequently they may be trained in the Workshop Wing for use and repair of their implements so that the farmers may have no hesitation in adopting the improved implements. It is further felt that workshop wing can also take up the work of repairs which can not be repaired locally, for example, the Panchayat has one Neco seed Drill which is out of use for several years for want of repair.

**Reasons as to why more improved: Agricultural Implements are not purchased:-** The farmers were asked the reasons why they did not possess more improved implements in addition to those already possessed. They replied that their Bullocks are not strong enough to pull their implements for which it is necessary that effective demonstrations should be laid out for educating the farmers, that there exists a better implement which will do the right type of work and will do it more efficiently than by indigenous method. It is therefore absolutely essential that intensive demonstrations, should be conducted for cultivators, Wheel or Hand Hoes, Threshers etc. at cultivators field on the same scale as was done with light iron ploughs.

## Minimum size of cultivation holdings required for possessing various types of improved implements.

It is considered to be justified for economic and profitable utilization of the implements that there should be a limit of implements in proportion to the size of holding.

| Minimum size of holding: | Proposed Implemets: |
|---|---|
| 1. Three acres. | Cultivator, MB Plough; wheel or Hand Hoe. |

2. Eight acres. MB Plough, cultivator, Thresher Hand or Wheel Hoe.

3. 12 acres to 20 acres. MB Plough, Disc Harrow cultivator, Thresher and seed drills, and other implements, according to local requirement.

The above mentioned improved agricultural implements will go long way in meeting the requirement of improved agricultural practices such as, seed bed preparation, green manure turning, seed rate regulation, inter cultivator hoeing, operations, dry weather cultivator and threshing etc.

To sum up it can be stated that programme can make a significant progress by intensive and effective demonstrations, opening of sub-depots by cooperative, repair facilities by training artisans by Workshop Wing and hiring facilities of Implements.

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## Cooperative Joint Farming Society - Bhanikhurd

### A case study

The name of the Society under reference is the Sandan Cooperative Joint Farming Society Ltd., Bhanikhurd. The very name of the Society reflects that its membership is limited only to a particular subcaste known as 'Sandan' residing in the village.

The Society is newly organised and is still in its beginning stages. The first General Meeting for its organisation was held on 20.11.66 and its area of operation was fixed and limited to the village Bhanikhurd. The idea of having a cooperative joint farming society in the village came from the neighbouring village Sultanpur. The members were inspired by the working of such societies organized in the adjoining village Sultanpur. They watched its working keenly and got convinced and decided to have such a society in the village of their own.

With this background, the Sandan Cooperative Joint Farming Society Ltd., Bhanikhurd was organised. The first Managing Committee formed at the time of its organisation consisted of the following persons:

| | |
|---|---|
| Shri Shiv Ram S/o " Devi Chand | President |
| " Ved Paul S/o " Mangat Ram | Vice President |
| " Joti Ram S/o " Ram Singh | Cashier |
| " Sis Ram S/o " Pat Ram | Members |
| " Sher Singh S/o " Data Ram | Members |

It was also decided to get the society afflicted with the Karnal Central Cooperative Bank Ltd., Karnal. The rate of interest on loans to members was decided to be Rs.8.50 per annum. It was decided that each member should at least take one share of the value of Rs.100.00 in the Society at the time of admission and will be required to pay Rs.50.00 only towards the value of the share and the rest may be paid in two equal half yearly instalments. It was further decided that the members of the society will pool their entire holding and other sources in the society and will get 1/3 of the total gross income according to their units. The members who will work on the farm will be paid at the local rates either monthly or daily. After making necessary provisions for the Reserve Funds according to rules, the members will be paid devidends upon their paid up share capitals.

The society has been registered under the Punjab Cooperative Societies Act 1961. Its date of registeration is 3.12.66. A sum of

Rs.800.00 as shares from members, and Rs.70.00 as admission fee from them have been collected. Necessary registers and other Stationery have been purchased to maintain necessary records of the Society.

There are 14 members in the society namely;

1. Shri Shiva Ram S/o Devi Chand.
2. " Ved Paul S/o Shiva Ram.
3. " Bharat Singh.
4. " Vijai Singh.
5. " Ved Paul S/o Mangat Ram.
6. " Bharat Singh.
7. " Baljit Singh.
8. " Sher Singh S/o Data Ram.
9. " Babu Ram S/o Sher Singh.
10. " Joti Ram S/o Ram Singh.
11. " Mewa Singh S/o Mansa Ram.
12. " Sis Ram S/o Pat Ram.
13. " Zola Singh S/o Sis Ram.
14. Smt. M- htari Devi w/o Ram.

Only seven families have joined the society so far. On enquiry it was found that some more families are expected to join the society soon. Others will join after the results of the working of the society for atleast one year.

The total land owned by the members is 57 acres and the same is pooled in the society. Eight acres of land is taken on lease. In this way the total area under the cooperative farm comes to 65 acres. Some land is expected to be arranged by the society. The whole land is irrigated through one pumping set and two wells. They intend to instal two more tubewells.

The members as well as other farmers expressed their difficulty and inability to get electric connections for irrigational purposes inspite of their best efforts for a considerable period. The same Managing Committee formed at the time of the organization of the Society is still continuing.

On enquiry, Shri Ved Paul, the Secretary of the Society informed that they are intending to establish and run a Poulty farm as a side business.

According to the Proceedings Book of the Society, the last general meeting of the society was held on 5.2.67. In this meeting two resolutions seem to be considered and duly passed by the members. One was for the Electric connections for the tube-wells and the other was for a Depot to be run by the Society for the distribution of sugar and flour to the adjoining villages. It was decided to move the authorities concerned for the same.

The society is still in its beginning stages and will start its actual work on the farm on cooperative basis after the harvest of the crops already sown by the individual cultivators from the next season. The society has not yet received any grant or aid from the Government.

The existing members of the society appear to have good faith in the society, and are trying to solve their problems of and raise their agricultural production by cultivating jointly and pooling their other sources under the cooperative principles.

From the close study of affairs of the society, it appears to be more a society of some families of common interest with kin relation than a real cooperative society organised on cooperative principles. For raising it to a standard of a real cooperative joint farming society, the management of the society should try to enroll members from other families residing in the village.

The members as well as the managing committee of the society appears to be very enthusiastic and conscious about the society. They also seem to be quite responsive to new ideas and improved practices. The idea of pooling of entire holdings and other sources in the name of society by the members is a good and healthy sign for the future success of the society.

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## High yielding varieties in Bhanikhurd ( A case study )

### I. Introduction

A group discussion was held with farmers as an introductory discussion towards objective of the study on High yielding programme. Rice is one of the top most staple food crop in our country. It occupies nearly 30 million hectres (one hectre is equal to 2½ acres) of land from Kerala to Kashmir with 30 million tons of rice production annually. In India at present 75 lakh acres of land are under the programme of High Yielding varieties. Production of rice contributes 62% of total cereal production in India. In India production of rice and wheat may be put in the proportion of 3:5:1. Yet per acre yield did not show impressive improvement as a result the Government imported cereal in order of

3.2 million tons in the year 1958
4.5 " " " " " 1963
7.5 " " " " " 1965

In South 2 to 3 crops of rice are taken out and in North so far only one crop of rice is being taken. The present Indian varieties do not have potentials of high production.

Due to shortage of food in India, there is need to evolve and bring such varieties as for example Taichung Native-I, Mexican Wheat(Sonara 64) which have potentiality of high production.

By such group discussion, cultivators of the village became very much interested and it seemed that they are very receptive to taking up of New and useful knowledge and skill for going in for cultivation of High Yielding varieties programme. Sonara-64-Wheat as we were told, was being cultivated since last year and they are convinced regarding its high-yielding ability subject to adequate irrigation facilities, availability of adequate fertilizers to be used heavily as these varieties are responsive to heavy fertilizer use. High yielding varieties like Sonara-64, Taichung Native-I (Paddy), I.R.8(Paddy) are heavy feeders.

### II. Background of the village:

It is a good paddy growing area although the land is alkaline for which the cultivators were advised to use paddy husk to provide proper drainage facilities, use of organic manure, green manures, gypsum etc. for correcting the Alkalinity. Cultivators were

also advised to use Lime at the time of preparation of land and to apply Lime to the Legumegreen manuring crop grown in rotation with upland rice crop which increases the nitrogen content of the soil and thereby increasing the yield of legume as well as the succeeding rice crop.

It was also explained that application of Lime in the waterlogged rice fields reduces the intensity of irontoxicity and root rot disease of rice.

It was also advised that as Lime is costly, Basic slag from factory and Soda-lime waste of paper mills can also be used as effective substitute for lime and the cultivation wherever we met in this village were convinced and taken into confidence as " USAR " Land (i.e. alkaline land) poses to be a problem in this village.

Most of the villagers are agriculturists and have been taking up farming practices as their way of life.

Barseem grows profusely in this village which is used as cattle feed also and 6 (six) cuttings are taken in a year. Also potatoes, Sugarcane, Onion, garlic and Carrot and other cole vegetables are grown in the village.

So far as present position and extent of the adoption of High yielding varieties programme, the difficulties with suggested measures for an amicable solution have been enumerated below.

It cannot be overemphasized that cultivators and villagers of the village Bhaini Khurd are responsive, receptive and interested in the adoption of cultivation of High yielding varieties of crops. Only thing required is to hold some proper and adequate number of Demonstration plots on High Yielding varieties, Crop cutting trials, use of fertilizers and proper dissemination of useful and gainful knowledge on High yielding varieties through pamphlets in vernacular and local languages so that they are identified with the theory and practice so that these vernacular pamphlets are discussed in groups in the villages at the sparetime of the villagers in the evening when they are free and come back from their fields.

So far as the problems of the villagers are concerned and the problems faced and experienced in the fields of different High Yielding varieties are enumerated as follows:

<u>Problem regarding high yielding varieties</u>: The following problems are being experienced in the field of different

high yielding varieties:

Paddy:

1. Production of less straw.
2. Fields under waterlogged condition cannot be put under this variety.
3. Attacked by Bacterial Leaf blight.
4. Needs extra investment especially in fertilizers.

Wheat:

1. Needs more investment especially in fertilizers.
2. Grain quality not relished by people.
3. Colour of grain not liked.

Hybrid Maize:

1. Seriously attacked by stem or shoot borers.
2. Late in maturity.
3. Water logging conditions does not permit.

Hybrid Bajra

1. Seriously attacked by green smut.
2. Seeds are to be procured every time.
3. Does not suit due to heavy rain and water logging conditions.

Hybrid Jowar

1. Seeds are to be procured every time.
2. Seriously attacked by borers.

General problems regarding high yielding varieties

1. Scarcity of irrigation water.
2. Scarcity of fertilizers.
3. Difficulties in procuring seeds in time.
4. Non-avalability of plant protection equipment.
5. Lack of technical know-how of using insecticides and handling of equipments.
6. Grains of Taichung Native-I is not liked as it is rough variety.
7. Less quantity of straw is produced -as byeproduct.
8. Problem of breaking at nodes of stem in Mexican wheat.
9. Non-availability of electricity for running tubewells.
10. Non-popularity of improved implements.
11. Problem of non-availability of loan and subsidy for minor irrigation.

Conclusion:

During our village studies it has been found that cultivators are very much interested in the

cultivation of High yielding varieties but they are also handicapped as because they are not getting the supply of seeds and fertilizers in time and in optimum quantities. Moreover it has been found that the problem of irrigation water is very [illegible]ute as we could find only 2-3 tubewells runni[illegible] electricity and rest 8-10 tubewells lying [illegible]

Proper demonstrations/Village camps from Extension Education Institute, if possible may be organised in both the seasons of Kharif and Rabi so that cultivators get encouragement, confidence and up-to-date knowledge of the cultivation of the high yielding varieties.

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